South Carolina
Commission on Higher Education

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CHE
2/5/2015
Agenda Item 8.02.A1-5

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne and Members, Committee on Academic Affairs and Licensing

Analyses of Five New Program Proposals

Attached are the executive summaries and proposals for five new academic degree programs for consideration at the February 5, 2015, meeting of the S.C. Commission on Higher Education.

Please do not hesitate to call Dr. MaryAnn Janosik, Director of Academic Affairs, at 803-737-3921 should you have any questions or concerns about the summaries or recommendations.

Enclosures

New Program Proposal
Master of Science in Advanced Athletic Training
University of South Carolina

Summary

The University of South Carolina requests approval to offer a program leading to the Master of Science in Advanced Athletic Training to be implemented in Fall 2015. The proposed program is to be offered through traditional and online instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	8/1/11	Not Applicable
Program Planning Summary considered by ACAP	10/13/11	ACAP members asked that the proposal clearly state that the proposed program will replace an existing concentration that will be terminated when the proposed program is implemented.
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	ACAP members discussed the need for the proposed program. Dr. Kristia Finnigan mentioned that the existing concentration of athletic training in the M.S. in Physical Education currently has a 100% placement rate. Dr. Finnigan agreed to revise the proposal to include the information about need discussed during the meeting. ACAP members then voted to approve the program.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested that the proposal describe the transition plan for terminating the existing concentration in athletic training in the M.S. in Physical Education and that the Justification section be strengthened with additional employment information.
Revised Program Proposal Received	12/2/14	The revised proposal satisfactorily addressed all of the requested revisions.
CAAL Consideration	1/8/2015	Commissioners asked why the proposal was submitted three years after the program planning summary. Dr. Finnigan described the internal approval processes and explained that the submission was delayed because of leadership changes in the College and Department that houses the proposed program and a college-wide reevaluation of all degree programs.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve program leading to the Master of Science in Advanced Athletic Training to be implemented in Fall 2015.

Committee Member Questions and CHE/Institutional Responses:
University of South Carolina Columbia, M.S., Advanced Athletic Training

QUESTION: pg 1.. Why 3 years from planning summary to program proposal?

INSTITUTIONAL RESPONSE: In our initial planning, we pursued the MS in Athletic Training as a name change for the existing MS in Physical Education degree. However because the change resulted in the need for a new degree CIP code, we began the new program process. After the program planning summary was submitted, leadership changes in the College and Department led to a College-wide reevaluation of degree programs, which delayed progress on the proposal. The Department subsequently decided to institute curriculum changes affecting the future program, and these needed to be fully implemented before finalizing the new MS degree proposal.

QUESTION: Pg 6 says "most students will .... Work as a BOC certified athletic trainer while earning an advanced MS degree. " but pg 13 says students will take a full academic load. Is this consistent?

INSTITUTIONAL RESPONSE::Yes it is consistent. Almost all of the graduate students pursuing this degree option are funded by external contracts for athletic training services, and work part-time (20 hours) as Graduate Assistants. Their “work as a BOC certified athletic trainer” refers to their duties as Graduate Assistants, and NOT to their being employed full-time in the community while pursuing their MS degree. We have had only a few students in the past 10 years in this degree option who were not on a funded assistantship as a GA.

NEW PROGRAM FULL PROPOSAL

University of South Carolina—Columbia

College of Education
Department of Physical Education and Athletic Training

Master of Science (MS) in Advanced Athletic Training

Date of Submission: March 17, 2014

_____
Harris Pastides, President

_____
Date

Program Contact Information:
Toni M Torres-McGehee PhD, ATC
Associate Professor/AT Graduate Director
E-mail: torresmc@mailbox.sc.edu
Phone: 803-777-0636

2. Classification

Program Title: Advanced Athletic Training

Academic Unit: Department of Physical Education and Athletic Training

Level of Degree: Master of Science

Proposed Date Implementation: Fall 2015

Site: Columbia

CIP Code: 51.0913

Program qualifies for supplemental Palmetto Fellows Scholarship/LIFE Scholarship awards: No

Delivery Mode: Traditional based with hybrid components

Area of Certification: N/A

3. Institutional Approval

Internal Institutional Approvals

Department Chair: Date: 4/15/2014

College of Education Dean: Date: 4/21/2014

Provost: Date: 5/7/2014

President: Date: 5/8/2014

Board of Trustees: Date:

4. Purpose

The purpose of this program is to provide a "Post-Professional" Advanced Athletic Training Graduate Degree Program for athletic trainers certified through the Board of Certification (BOC). It is important to note this degree will not certify graduate students; however they will be required to be certified by the Board of Certification through an undergraduate or entry-level Masters athletic training program that is accredited through the Commission on Accreditation of Athletic Training Education (CAATE).

Vision
The University of South Carolina's Advanced Athletic Training Program pursues distinction at the community, state, and national levels as a leader addressing the needs of diverse patient populations, lifelong learners, community services, and the profession of athletic training.

Mission
The mission of the Advanced Athletic Training program at the University of South Carolina is to provide a coordinated balance of education and clinical experiences. Our program is structured around the following:

A. Exposing our students to a variety of patient populations
B. Advocating athletic training education (didactical and clinical educational opportunities)
C. Developing and conducting research (evidence-based practice)

Objectives
The Athletic Training program will provide athletic trainers with educational excellence, equity and opportunity in the 21st century on a local, regional, and national level.

1. To provide athletic trainers with the theoretical knowledge and understanding necessary to actively engage in theory, research and practice in sports medicine. *(See Standard for Evidence Based Practiced-EBP below)*
2. To provide an atmosphere that is conducive to quality instruction and clinical experiences in sports medicine. *(See Standard for Diverse Clinical Experiences Below)*
3. To engage athletic trainers with a variety of athletic training educational experiences that will best develop their clinical skills by USC's partnerships with government agencies; educators, schools, and districts; communities; professional organizations; and other institutions of higher education. *(See Standard for Diverse Clinical Experiences Below)*
4. To prepare athletic trainers for diverse career opportunities by remaining responsive to the evolving needs of the communities we serve. *(See Standard for Diverse Clinical Experiences Below)*
5. To promote, foster, and sustain the highest quality research and evidence-based practice in athletic training and sports medicine. *(See Standard for Evidence Based Practiced-EBP below)*
6. To provide patient centered care and to educate the patients about health-related concerns and intervention options. *(See Standard for Diverse Clinical Experiences Below)*
7. To recognize any conflict of interest that could adversely affect the patient's health, and to facilitate collaboration between the athletic trainer and the patient, physician, physical therapist, physical therapy specialist (tech), medic, or members of patient's social network or healthcare system to develop an effective treatment plan. *(See Standard for Diverse Clinical Experiences Below)*
8. To facilitate interdisciplinary collaborations among different health care providers. Different health professions often perform a subset of overlapping functions, but separate scopes of practice, governance structures, and standards maintained by licensing agencies for the different health professions' present obstacles to the delivery of optimum patient care by an interdisciplinary team. ATs will interact with other professionals (e.g., Physical Therapist, Physicians, Physician Assistants, Nursing, etc.). *(See Standard for Diverse Clinical Experiences Below)*

Key Standards Post-Professional core competencies for CAATE Post-Professional Programs

The athletic trainer's post-professional preparation is based on developing students' knowledge, skills, and abilities, beyond the professional level, as determined by the Commission. Post-Professional athletic training degree programs incorporate core competencies required for advanced clinical practice. The Post-Professional core competencies are listed and defined here:

- **Evidence-Based Practice-EBP** (Research Project)
    - The athletic training faculty **must** be actively involved in advising students in scholarly experiences by providing mentorship and serving as role models.
    - Sufficient time and opportunity **must** be provided within the program for students to engage in scholarly experiences.

- The program's scholarly experiences **should** lead to dissemination of new knowledge in athletic training.
- The program's scholarly experiences **should** emphasize clinical research designed to inform athletic training practice.

- **Patient-Centered Care – Diverse Clinical Experiences** (Individual Clinical Sites – 2 Distinct Rotations)
  - The program **must** include advanced clinical practice experiences designed to improve the students' ability to provide patient care.
  - Sufficient time and opportunity **must** be provided within the program for students to engage in advanced clinical practice experiences.
  - Assessment of student achievement of the advanced clinical practice outcomes and objectives **must** be accounted for via formal academic coursework.
  - Students **must** receive formal and informal feedback regarding their advanced clinical practice performance at regular intervals.
  - The advanced clinical practice experiences must integrate the *Post-Professional Core Competencies*.
  - There **must** be an individualized advanced clinical education plan (individual goals and/or objectives) for each student to improve the students' ability to provide patient care.
  - All clinical education sites **must** be evaluated by the program on an annual and planned basis and the evaluations **must** serve as part of the program's comprehensive assessment plan.

- **Interprofessional Education and Collaborative Practice** (Diverse Clinical Experiences)
  - Coordinated cooperation among clinicians who provide care for a patient is far more important than professional prerogatives and roles. Different health professions often perform a subset of overlapping functions, but separate scopes of practice, governance structures, and standards maintained by licensing agencies for the different health professions present obstacles to the delivery of optimum patient care by an interprofessional team.

5. JUSTIFICATION

Since 1950, athletic trainers have been providing health care services to professional, college and high school athletes, as well as to the physically active population. Currently, the national certification for athletic trainers is obtained through the Board of Certification (BOC) from an accredited "Professional" (e.g., Entry-Level) Athletic Training Program at the undergraduate and/or the masters level. However, recent statistics from the National Athletic Trainers Association indicate that of the 34,000 members, over 70% have a graduate-level degree. The typical model for many athletic trainers is to first complete an entry level professional preparation degree and become a certified and licensed athletic trainer. After completing a BS degree and passing the BOC certification examination, most students will look for assistantships in athletic training where they can work as a BOC certified athletic trainer while earning an advanced MS degree.

It is important to understand the difference between our proposed MS degree in athletic training and other Universities proposing new entry-level certification programs. Our MS program would be the only program in the state that provides an advanced athletic training degree for students already certified by the BOC. Other Universities are looking to create a degree option at the Masters level that leads to initial BOC certification. Our proposed program offers students an advanced set of skills and knowledge while they are able to work as BOC certified athletic trainers. The mission of a Post-Professional Advanced Athletic Training Graduate Degree Program is: 1) to expand the depth and breadth of the applied, experimental, and knowledge and skills of athletic trainers; 2) to expand the athletic training body of knowledge; and 3) to disseminate new knowledge in the athletic training discipline. A Post-Professional Graduate Degree in Advanced Athletic Training will be characterized by advanced systematic study and experience, which is advanced in terms of knowledge, understanding, scholarly competence, inquiry, and discovery. In addition, professionals in athletic training with a MS degree have a significantly higher average salary than those with only a BS degree. Based on the November 11, 2013 edition of the NATA News, an athletic trainer with a Masters degree has an average annual salary of $51,146 compared to $46,176 for those with a BS degree.

Currently, the Department of Physical Education and Athletic Training has a 36 hour MS degree in Physical Education with a concentration in athletic training. The MS degree in PE with a concentration in athletic training has been graduating 10-18 students a year since 2005. So our proposed MS in Athletic Training is not really a "new" degree, but rather a change in name to accurately reflect the content of a very successful MS program that has been running for 9 years. Over the years we have made several clinical and didactic changes to the degree to enhance the quality of educational experiences for students, including adding a strong focus of research into the curriculum. We believe there is a strong need for a full-fledged MS degree in Advanced Athletic Training here at USC to continue to build on the progress that has been made over the past 9 years. This MS degree in athletic training will continue to be a popular program for students who receive their initial BOC certification at the Bachelors level. Upon approval of this degree, we plan to terminate the MS degree in Physical Education as there has not been a student other than an athletic trainer in this degree program for over 10 years and there are no physical education courses in the degree. The transition plan to this degree will be simple. All of the students in the existing program will remain as there is no new coursework or additional requirements. All of the students are athletic trainers and looking forward to receiving a degree that is correctly named and reflects the educational experiences they are currently receiving. There are no new costs associated with this new degree.
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Below is data from the United States Department of Labor. This data is representation of the growth of Athletic Training nationally, in addition to the current employment opportunities in the State of South Carolina. Based on data from the South Carolina high school league, it appears approximately 70% of all secondary schools have a certified athletic trainer employed through the school. In addition, 40% of secondary schools have two certified athletic trainers to provide health care for school athletes. There is also a movement to having middle school games covered by athletic trainers. With a push toward future legislation to mandate certified athletic training coverage at high school and middle school sporting events, the outlook for employment of future athletic trainers is good. Also provided is a list of 3 years of data to support the successful employment of graduate students from the MS degree in Physical Education.

United States Department of Labor

Summary January 8, 2014	
2012- Median Pay	$42,690 $20.52 per hour
Entry-Level Education	Bachelor's or Master's Degree
Work Experience in Related Occupation	None
On-the-job training	None
Number of Jobs, 2012	28,900
Job Outlook, 2012-2022	19% (faster than average)
Employment Changes , 2012-2022	5,400

http://www.bls.gov/ooh/healthcare/athletic-trainers-and-exercise-physiologists.htm

Occupational Employment and Wages, May 2012

http://www.bls.gov/oes/current/oes299091.htm

29-9091 Athletic Trainers

National estimates for this occupation:
Employment estimate and mean wage estimates for this occupation:

Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Mean wage RSE (3)
20,780	2.3 %	(4)	$44,010	0.8 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Annual Wage (2)	$25,960	$33,900	$42,090	$51,870	$64,140

State Employment	*Employment*	*Employment per thousand jobs*	*Location Quotient*	*Hourly Mean Wage*
South Carolina	*310*	*0.17*	*1.07*	*$53,140*

Industry profile for this occupation:

Industries with the highest published employment and wages for this occupation are provided.

Industry	Employment(1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Colleges, Universities, and Professional Schools	4,270	0.15	(4)	$45,020
Offices of Other Health Practitioners	3,360	0.47	(4)	$40,320
Other Amusement and Recreation Industries	3,180	0.29	(4)	$44,200
General Medical and Surgical Hospitals	2,870	0.05	(4)	$44,310
Elementary and Secondary Schools	1,820	0.02	(4)	$53,530

Industries with the highest concentration of employment in this occupation:

Industry	Employment(1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Spectator Sports	1,180	0.90	(4)	$46,200
Offices of Other Health Practitioners	3,360	0.47	(4)	$40,320
Other Amusement and Recreation Industries	3,180	0.29	(4)	$44,200
Other Schools and Instruction	660	0.19	(4)	$32,960
Colleges, Universities, and Professional Schools	4,270	0.15	(4)	$45,020

Top paying industries for this occupation:

Industry	Employment(1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Performing Arts Companies	50	0.04	(4)	$58,020
Elementary and Secondary Schools	1,820	0.02	(4)	$53,530
Junior Colleges	400	0.05	(4)	$46,980
Spectator Sports	1,180	0.90	(4)	$46,200
Colleges, Universities, and Professional Schools	4,270	0.15	(4)	$45,020

Our current program has already demonstrated successful employment of all graduates at the conclusion of the MS degree in Physical Education with an emphasis in athletic training. Graduates from our program have obtained jobs in settings such as the National Football League, the US Army, Cirque de Soleil, the New York Dance Company, Athletic Training for Institute for Western Surgery in China (American High School), as well as more traditional settings such as high schools and colleges. Graduates from our program meet a significant need in the state of South Carolina for teacher/athletic trainers in the high schools. Examples of athletic trainer placements from our program in the Columbia area over the past five years include Airport High School, Whitmire High School, Richland Northeast High School, Dreher High School, AC Flora High School, Irmo High School, Spring Valley High School, Columbia High School, White Knoll High School, Pelion High School, and Swansea High School, in addition to Benedict College. In the last 3 years, 36% of our graduates were employed in the State of South Carolina. The existing Master's program was on the path to becoming one of the premiere graduate athletic training programs in the country; the conversion to a more rigorous academic MS degree will only enhance its appeal; therefore we anticipate no changes in this pattern resulting from the current proposal.

2010-2011	**Job Placement**	**State**
Student 1	Assistant Athletic Trainer - The Ohio State University	Ohio
Student 2	Head Athletic Trainer/Teacher - Richland Northeast High School	South Carolina
Student 3	Athletic Trainer/Physician Extender - USC Sports Medicine	South Carolina
Student 4	Associate Athletic Trainer - Flagler College	Florida
Student 5	Assistant Athletic Trainer/Teacher - White Knoll High School	South Carolina
Student 6	Head Athletic Trainer - Drayer Physical Therapy	Georgia
Student 7	Athletic Trainer - University of South Carolina Aiken	South Carolina
Student 8	Assistant Atheltic Trainer - University of South Carolina, Columbia	South Carolina
Student 9	Head Athletic Trainer - Eau Claire High School, Drayer Physical Therapy	South Carolina
Student 10	Athletic Trainer - Geisinger Wyoming Valley	Pennsylvania
Student 11	Atheltic Trainer - High School - Drayer Physical Therapy	Alabama
Student 12	Athletic Trainer - New Century Orthopedics	Kansas

2011-2012	**Job Placement**	**State**
Student 13	Non-AT – Moved overseas for husband's job	
Student 14	Athletic Trainer/Physician Extender Plancher Orthopedic and Sports Medicine	Connecticut
Student 15	Athletic Trainer/Physician Extender Steadman Clinic	Colorado
Student 16	Athletic Trainer – High School	Pennsylvania
Student 17	Head Athletic Trainer/Teacher North Augusta High	South Carolina

	School	
Student 18	Head Athletic Trainer - Columbia High School - Drayer Physical Therapy	South Carolina
Student 19	Head Athletic Trainer - Lower Richland High School - Drayer Physical Therapy	South Carolina
Student 20	Head Atheltic Trainer - Morris Hills High School	New Jersey
Student 21	Assistant Athletic Trainer Dutch Fork High School - Moore Clinic	South Carolina
Student 22	Athletic Trainer – Virginia Commonwealth University	Virginia
Student 23	Assistant Athletic Trainer - Hammond High School	South Carolina
Student 24	Athletic Trainer – High School	New Jersey
Student 25	Athletic Trainer - Community Health Network	Indiana
Student 26	Head Athletic Trainer - North Oconee High School	Georgia

2012-2013	**Job Placement**	**State**
Student 27	Head Athletic Trainer High School	Kentucky
Student 28	Head Football South Carolina State University	South Carolina
Student 29	Intern - Physician Extender Steadman Clinic	Colorado
Student 30	Assistant Athletic Trainer - Liberty University	Virginia
Student 31	Head Athletic Trainer High School	Ohio
Student 32	Assistant Athletic Trainer - Georgetown University	Washington, DC
Student 33	Athletic Trainer/Personal Trainer	Wisconsin
Student 34	Head Athletic Trainer High School	Ohio
Student 35	Assistant Athletic Trainer/Teacher Gilbert High School	South Carolina
Student 36	Assistant Athletic Trainer - Lubbock Christian University	Texas
Student 37	Assistant Athletic Trainer - Houston Baptist University	Texas
Student 38	Head Athletic Trainer - Benedict College	South Carolina
Student 39	Athletic Trainer/Physician Extender - USC Sports Medicine	South Carolina
Student 40	Athletic Trainer - Andrews Institute for Orthopedic & Sports Medicine	Florida
Student 41	Athletic Trainer/Physician Extender - OrthoIndy & the Indiana Orthopedic Hospital	Indiana

Centrality of Program to Commission Approved Mission of the Institution

The mission of our institution is to educate the state's citizens through teaching, research, creative activity and community engagement. The development of the Masters of Science in Advanced Athletic Training will share the same mission. All graduate students will engage in some form of teaching (e.g., Preceptor for undergraduate athletic training students and/or teaching assistant); are required to complete a data-base research project; and will be providing

athletic training services to our community local high schools, small colleges, orthopedic clinics, and physical therapy clinics.

Relationship of the proposed program to existing programs at the proposing institution:
We currently have a strong relationship with the USC School of Medicine and the Department of Exercise Science in the Arnold School of Public Health. Since our MS in Physical Education with an emphasis in Athletic Training allowed for several electives, for many years our students have been taking courses in both the School of Medicine and the Department of Exercise Science. The MCAB 710 (gross anatomy) course has been a option for our students and we hope to continue that relationship in the future. Gross anatomy is a required course for medical school students in addition to many other health care professions (e.g., physical therapy, physician assistant), therefore having the opportunity to engage in interdisciplinary collaborations is a strength for this program. Our students have also utilized many courses within Public Health's Health Promotion, Education and Behavior Department. Our students will continue to have curricular options within these disciplines in the newly reconstituted MS program. We believe it makes our program stronger and more marketable to be able to demonstrate interdisciplinary collaborations with such strong programs at USC.

List of Similar Programs in the State:
There are currently no MS degrees in Advanced Athletic Training in any of the universities or colleges in the state of South Carolina.

Assessment of extent to which the proposed program duplicates existing programs in the state and region:

A. Graduate Athletic Training students at other institutions in the state must seek degrees outside of athletic training (e.g., public health, exercise physiology, sports administration, etc.)

B. Proposed program offers an advanced degree in athletic training (new opportunity)

C. There are currently 7 "professional" entry level athletic training programs in the state of South Carolina (Charleston Southern University, College of Charleston, Erskine College, Lander University, Limestone College, Winthrop University, and The University of South Carolina). These programs also provide a great applicant pool and opportunity for a Master degree in Advanced Athletic Training. Most South Carolina colleges/universities have only a handful of graduate athletic training students.

D. Other "Post Professional" advanced athletic training programs are out of state (e.g., University of North Carolina-Chapel Hill, University of Oregon, and University of Kentucky); therefore, we will not be duplicating any existing programs in South Carolina.

6. Admission Criteria

Graduate students are admitted through a cooperative effort between The Graduate School and the College of Education. The College process is coordinated by the program Graduate Director. After reviewing the student's credentials, the program makes a recommendation to the Graduate School, who forwards the official notice of admission.

A. This program requires the GRE as part of the admission process, and adheres to the USC Graduate School minimum standards for acceptance (3.0 GPA and GRE-

Verbal 153 and Quantitative 144; submission of old GRE within 5 years of test date is acceptable with a minimum score of 1000 with 500 Verbal and 500 Quantitative). International applicants whose native language is not English are also required to submit a satisfactory score on the TOEFL or the IELTS Intl. Academic Course Type 2 exam. The minimum acceptable score on the TOEFL is 80 Internet-based or 570 paper-based. The minimum acceptable overall band score on the IELTS International Academic Course Type 2 exam is 6.5. All candidates must have completed a "Professional" athletic training program at the undergraduate or graduate level (e.g., BS in Athletic Training or MS in Athletic Training)

B. In addition, all candidates must have successfully passed the Board of Certification for Athletic Training and be eligible for South Carolina State Certification.

7. Enrollment

Table A – Projected Total Enrollment

PROJECTED TOTAL ENROLLMENT						
YEAR	**FALL**		**SPRING**		**SUMMER**	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2015 – 16	30-38	270-342	30-38	270-342	0	0
2016 – 17	30-38	270-342	30-38	270-342	0	0
2017 – 18	30-38	270-342	30-38	270-342	0	0
2018 – 19	30-38	270-342	30-38	270-342	0	0
2019 – 20	30-38	270-342	30-38	270-342	0	0

Projected Total Enrollment Table Comments

1. The program is a two-year program. Number of students per year is represented as 2 cohorts. This includes 15-18 new students to the institution will enroll in the program each year.
2. New graduate students will enter the program in the fall semester;
3. Based on past history, there has been very little attrition between academic years (e.g., ~1-2 students every 3-4 years).
4. Students will take a full academic load; and no summer courses will be required.
5. Throughout the last few years 2011-2014 we have recruited graduate students from peer institutions such as: University of Connecticut, University of North Carolina Chapel Hill, The Ohio State University, The University of Texas, University of Georgia, Texas Tech University, The University of Alabama, and Louisiana State University.

Justification for Student Enrollment

Currently, there are 16 Post-Professional Advanced Athletic Training programs in the nation. Below is student enrollment along with faculty representation for 2011-2012 (institution blinded for CAATE annual report) and for 2013-2014 (Information obtained from current Program Directors, please note not all data was reported or collected). We are proposing to maintain ~30 graduate students in the program. We currently have ~35 graduate student enrolled in graduate programs. This enrollment is above average compared to the institutions below:

2012			
Institution	**FTE Faculty**	**Adjunct Faculty**	**Total # Students**
Institution 1	3.65	2	28
Institution 2	3.20	3	21
Institution 3	5.00	0	24
Institution 4	6.00	0	20
Institution 5	2.00	1	14
Institution 6	1.00	0	10
Institution 7	2.20	1	36
Institution 8	2.00	3	25
Institution 9	2.00	2	14
Institution 10	2.00	0	18
Institution 11	5.00	2	21
Institution 12	7.00	0	10
Institution 13	3.00	5	13
Institution 14	2.00	0	20
Institution 15	3.00	0	16
Institution 16	3.00	0	24

2013-2104				
Institution	**Other Programs**	**Research Required**	**# Faculty**	**Total # Students**
AT Still University	No	Thesis	7	21
California University of Pennsylvania	UG AT Program	Project/Thesis	8	21
Illinois State University	UG AT Program	Thesis	6	24
Indiana State University	UG AT Program	Project/Thesis		19
Indiana University	UG AT Program	Project		14
Michigan State University	UG AT Program	Thesis		
Ohio University	UG AT Program	Project/Thesis		33
Old Dominion University	NO	Project		24
Temple University	UG AT Program	??	5	10
University of Hawaii at Manoa	ELMS AT	Project/Thesis		15
University of Kentucky	NO	Thesis	4 3 adjuncts	24
UNC - Chapel Hill	UG AT Program	Thesis	8	20
University of Oregon	UG AT Program	Project/Thesis	3 15 adjuncts	13
University of Toledo	UG AT Program	Thesis		
University of Virginia	NO	Thesis	3	15
Western Michigan University	UG AT Program	Project	3	22

8. Curriculum

ADVANCED ATHLETIC TRAINING REQUIREMENTS (36 hours)

MS in Advanced Athletic Training		
ATEP 733	Evidence Based Practice in Medical Emergencies	(3)
ATEP 734	Evidence-Based Approach to Evaluation, Treatment, and Rehabilitation of Injuries	(3)
ATEP 735	Contemporary Issues in Athletic Training	(3)
ATEP 738	Advanced Athletic Training Practicum I	(3)
ATEP 739	Advanced Athletic Training Practicum II	(3)
ATEP 740	Evidenced Based Practice in Weight Management Assessment	(3)
MCBA 710	Special Topics in Gross Anatomy (Cadaver Anatomy)	(3)
MCBA 715	Cardiovascular Embryology (Cadaver Anatomy)	(3)

Research Requirements		
PEDU 770	Research Methods in Physical Education and Athletic Training	(3)
ATEP 798/799	Project/Thesis in Athletic Training	(3)
BIO 700	Introduction to Biostatistics	(3)

Professional Elective (Pick ONE) Can pick a different course it just needs to be approved by Graduate Director.		
ATEP 736	Advanced Treatment and Rehabilitation of Injuries	(3)
ATEP 737	Current Research in Athletic Training Education	(3)
PEDU 729	Study of Teaching Physical Education	(3)
PEDU 732	Instruction Behavior in Physical Activity	(3)
PEDU 750	History and Philosophy of Sport & PE	(3)
EXSC 700	Exercise and Public Health	(3)
EXSC 710	Behavioral Aspects of Physical Activity	(3)
EXSC 731	Mechanisms of Motor Skill Performance	(3)
EXSC 742	Clinical Exercise Testing	(3)
EXSC 780	Physiology of Exercise	(3)
DPT 750/751	Orthopedic Physical Therapy I & II	(3)

Proposed Masters Advanced Athletic Training Curriculum Progression
(36 Credit Hours)

FIRST YEAR – FALL SEMESTER	FIRST YEAR – SPRING SEMESTER
ATEP 735 – Contemporary Issues in Athletic Training 3 Credits **PEDU 770** – Research Methods in Physical Education & Athletic Training 3 Credits **BIOS 700** – Biostats or other stats option 3 Credits	**MCBA 710 – Special Topics in Gross Anatomy** 3 Credits **MCBA 715 – Cardiovascular Embryology** 3 Credits **ATEP 738 –** Advanced Athletic Training Practicum I 3 Credits
SECOND YEAR – FALL SEMESTER	**SECOND YEAR – SPRING SEMESTER**
ATEP 733: Evidence Based Practice in Medical Emergencies **3 Credits** **ATEP 734 –** Evidence-Based Approach to Evaluation, Treatment, and Rehabilitation of Injuries **3 Credits** **ATEP 739 –** Advanced Athletic Training Practicum II **3 Credits**	**ATEP 740:** Evidence Based-Practice in Weight Management Assessment **3 Credits** **ATEP 798** – Research Project in Athletic Training **3 Credits** **or** **ATEP 799 –** Thesis Preparation **Professional Elective** **3 Credits**

NEW COURSE DESCRIPTIONS:

ATEP 733: Evidence Based Practice in Medical Emergencies: Examination of common injuries and illnesses that lead to medical emergencies (e.g., sudden death) in sport and physical activity. This course includes critical analysis of research to determine prevention and treatment strategies. **(3 Credits-New Course)**

ATEP 738 – Advanced Athletic Training Practicum I: Provides advanced practical experience and the integration of evidence-based practice in the sports medicine settings. Course content will focus on graduate research project and topics related to athletic training education. (**3 Credits-New Course)**

ATEP 739 – Advanced Athletic Training Practicum II**:** Provides advanced practical experience and the integration of evidence-based practice in the sports medicine settings. Course content will focus on graduate research project and topics related to athletic training administration and management. (**3 Credits-New Course)**

ATEP 740: Evidence Based-Practice in Weight Management Assessment: Critical analysis of the current literature on weight control and health, metabolism, energy balance, and role of diet

and exercise in prevention and/or treatment in weight management in the physically active population. (**3 Credits-New Course)**

OTHER COURSE DESCRIPTIONS
ATEP 734 – Evidence-Based Approach to Evaluation, Treatment, and Rehabilitation of Injuries: Advanced study of the knowledge and skills involved in the evaluation of athletic injuries. **(3 Credits)**

ATEP 735 – **Contemporary Issues in Athletic Training**: Examination of issues shaping the athletic training profession with an emphasis on practical application and professional development. **(3 Credits)**

ATEP 798 – Research Project in Athletic Training: Independently executed project designed to expand the student's knowledge of physical education (**3 Credits)**

ATEP 799 – Thesis Preparation
PEDU 770 – Research Methods in Physical Education & Athletic Training: A study of applicable methods and tools of research in physical education and athletic training. (**3 Credits)**

BIOS 700 – **Introduction to Biostatistics:** Health-related statistical application. Descriptive statistics, probability, confidence intervals, hypothesis testing, regression, correlation, ANOVA.
(**3 Credits)**

MCBA 710 – Special Topics in Gross Anatomy: Advanced study of one region of the body with special emphasis on detailed anatomy, normal variation, surgical procedures, original research, embryology, and teaching methods. (**3 Credits)**

MCBA 715 – Cardiovascular Embryology: Advanced study of the essential features of human development, clarifying the gross anatomical features and giving emphasis to recent advances in human embryology. (**3 Credits)**

<u>POSSIBLE PROFESSIONAL ELECTIVES</u>

ATEP 736 - Advanced Treatment and Rehabilitation of Athletic Injuries
Credits: 3
Advanced study of the treatment of athletic injuries focusing on the concepts and principles of a comprehensive rehabilitation program, including therapeutic exercise and therapeutic modalities.

ATEP 737 - Current Research in Athletic Training Education
Credits: 3
Examination of current literature in athletic training education as it pertains to the clinical and didactic experiences of athletic training students, clinical instructors, and practicing professionals.

9. Assessment

The development of the assessment is consistent with other program assessment plans in the College of Education. The following is integrated in the plan:

1. Program Admission Criteria (e.g., GRE, GPA, and passing of the Board of Certification for Athletic Trainers)

2. Program Evaluation
3. Student Effectiveness
    a. Student Learning
    b. Student Performance other than classroom (e.g., teaching, administrative, clinical, and/or research project)
    c. Graduation Rates
    d. Publications of Student Work (e.g., abstracts, manuscripts)
    e. Presentations by students, alumni, and employer surveys
    f. Accomplishments of Program Alumni
    g. Job Placement Report

A Data Summary Report will be summarized by the program every fall semester by the Graduate Program Director and the Office of Quality Assurance. These annual reports on data from surveys of athletic training students, graduate supervisors and data from survey graduates will be analyzed with recommendations for program change annually. The Graduate Athletic Training Program Director and the Athletic Training Clinical Education Coordinator will collect and maintain records for all athletic training graduate students. Data will be collected on all students who are accepted into the Advanced AT program. A summary of data collection at admission, mid-point, and at end of the program will be prepared by the Athletic Training Program Director for each cohort group of students admitted to the Advanced AT program. The data will be evaluated by the Athletic Training Program Committee (AT Area Head, AT Graduate Program Director, AT Clinical Education Coordinator, Department Chair, and other associated AT faculty) to determine if admission standards need to be strengthened or the curriculum can be changed to strengthen areas of weak performance either didactically or clinically. During the evaluation of graduate student performance data, the Athletic Training Program Committee will also evaluate potential curriculum changes needed to remain in compliance with JRC-AT and Commission on Accreditation for Athletic Training Education (CAATE) “Post Professional” standards.

10. Faculty

Table B– Faculty List

List Staff by Rank (e.g. Professor #1, Professor #2, Associate Professor #1, etc.)	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Associate Professor #1	PhD, ATC	Athletic Training and Exercise Physiology	YES
Assistant Professor #1	PhD, ATC	Athletic Training and Kinesiology	YES
Assistant Professor #2	PhD, ATC	Currently have a search for this position. But will have Athletic Training Background and terminal degree	TBA
Clinical Associate Professor	PhD, ATC	Athletic Training and Education	YES
Clinical Assistant Professor #1	PhD, ATC	Athletic Training and Education	YES
Clinical Assistant Professor #2	PhD, ATC	Athletic Training and Exercise Physiology	YES

a) The Department of Physical Education and Athletic Training has already been approved to hire an Assistant Professor/Tenure Track faculty position. This faculty member will start in the Fall of 2014.

b) Associate Professor #1 is currently the Graduate Program Director for the MS in Physical Education w/ emphasis in Athletic Training; and they would assume the same role for the MS in Advanced Athletic Training. Assistant Professor #1 is currently the Athletic Training Room Research Lab Coordinator for the existing MS, and they would assume the same role for the MS in Advanced Athletic Training. Clinical Assistant Professor #2 is currently the Athletic Training Clinical Education Coordinator for the existing MS, and would assume the same role for the new program. No new administrative roles will be assigned.

c) The tenure-track position workload is based on 12 credit hours: 6 hours teaching, 3 teaching, and 3 hours service. Clinical faculty have an increased teaching load, although they will engage in research through chairing Master Research Projects, as well as pursuit of their own line of focused research as it relates to athletic training. Per the Commission on Accreditation for Athletic Training Education (CAATE) "Post Professional" programs, the Program Director's administrative and supervisory

responsibilities must be recognized in terms of release/reassigned time for other departmental responsibilities. The amount of release time should be consistent with departmental or institutional policy and appropriate for the administrative responsibilities of the program director. This release time will be determined by the Department Chair on an annual basis.

Athletic Trainers certified through the Board of Certification are all required to complete 75 continuing education hours every 3 years to maintain their Board Certification. This includes but is not limited to attending professional conferences, completing continuing education online modules, publishing manuscripts and abstracts, and presenting at local, regional and national conferences.

d) Institutional definition of full-time equivalent (FTE): Full-time (12 months = 1.00 FTE); Full-time (11 months = 0.938 FTE); Full-Time (10.5 months = 0.8653 FTE); Full-Time (9 month = .75 FTE).

Table C – Unit Administration, Faculty & Staff Support

UNIT ADMINISTRATION, FACULTY, AND STAFF SUPPORT						
YEAR	**NEW**		**EXISTING**		**TOTAL**	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2015 – 16			1	0.125	1	0.125
2016 – 17			1	0.125	1	0.125
2017 – 18			1	0.125	1	0.125
2018 – 19			1	0.125	1	0.125
2019 – 20			1	0.125	1	0.125
Faculty						
2015 – 16			6	.75	6	.75
2016 – 17			6	.75	6	.75
2017 – 18			6	.75	6	.75
2018 – 19			6	.75	6	.75
2019 – 20			6	.75	6	.75
Staff (Administrative Assistant Support)						
2015 – 16			2	.4	2	.4
2016 – 17			2	.4	2	.4
2017 – 18			2	.4	2	.4
2018 – 19			2	.4	2	.4
2019 – 20			2	.4	2	.4

Assumes tenure track 2/2 load with remaining portion of time in research and service; 12.50% of tenure track faculty time. Assumes clinical faculty 4/4 load. Assumes administrative support at 20% of time.

11. Physical Plant

The College of Education has been very supportive of the Athletic Training Programs over the last few years. We are currently located in the Blatt PE Center, in space vacated by the recently departed Dance program. The College of Education supported the renovation of one clinical lab classroom and one lecture classroom that is devoted to Athletic Training. This renovation was approved in the Fall of 2012 and completed in the Fall of 2013. In addition, we have one other clinical classroom available for use of undergraduate and graduate students as well. This classroom has been dedicated since the start of the program around 1998. With the development of these new classrooms, we have not had any space issues with scheduling both our undergraduate and graduate courses. We do not see the need for additional classroom space in the next 5 years.

12. Equipment

Given that our undergraduate athletic training program started in 1990, and the existing Master's program with concentration in 2005, we have been well supported by our College and the Department for major supply and equipment items. As the current proposal is not for a wholly "new" program in the standard sense, we have the advantage of a good deal of existing equipment. Any new equipment needs will be covered by course fees and occasional reallocation of departmental funds.

13. Library Resources

a) The Thomas Cooper Library collection of current journals, e-journals and text books related to the medical field is quite comprehensive. Key journals for the advanced athletic training program include the Journal of Athletic Training, Medicine and Science in Sport and Exercise, Advances in Exercise and Sport Physiology, Exercise and Weight Management, International Journal of Sport and Exercise Psychology, Journal of Applied Physiology: Respiratory, Environmental and Exercise Physiology, Journal of Sport and Exercise, Psychology of Sport and Exercise, Athletic Training Education Journal, College Athletics and Law, BMC Sport Science, Medicine, and Rehabilitation; British Journal of Sports Medicine, Advances in Eating Disorders, Eating and Weight Disorders, Eating Behavior, Eating Disorders, International Journal of Eating Disorders, Journal of Eating Disorders, Body Image, among others. We do foresee only minimal additional costs to update library holdings within the next 5 years.

b) Like the students in the existing MS degree, students in the new program will avail themselves of the e-journals accessible through the statewide higher education electronic library (PASCAL).

14. Accreditation, Approval, Licensure, or Certification

"Post Professional" Advanced Athletic Training Programs are accredited through the Commission on Accreditation for Athletic Training Education (CAATE). There are currently 16 "Post Professional" Accredited Advanced Athletic Training Programs across the country, and, as noted above, this will be the first in the state of South Carolina. The program intends to pursue accreditation 2 years after the proposed degree is approved. Two years will be necessary in order

for the program to compile sufficient assessment data necessary for accreditation. We anticipate initial accreditation 2017-2018 fiscal years if the program starts in the Fall of 2015.

Note: States with "Post Professional CAATE Accredited Programs: Arizona, California, Illinois, Indiana, Michigan, Virginia, Hawaii, Kentucky, North Carolina, Oregon, and Ohio.

There are three major components to the CAATE accreditation process:

1. A self-evaluation (self-study) report submitted to CAATE.

2. A peer review of the self-study and the institution during an onsite visit to confirm the accuracy of the self-study and gather additional evidence of quality.

3. A recommendation by the Post-Professional Review Team to CAATE who will make a final decision regarding accreditation.

15. Articulation

The proposed program will be the first in the State of South Carolina; therefore we cannot link to similar programs offered by other institutions in the state. Most athletic trainers do not pursue a terminal degree; however we believe our proposed program will prepare those that wish to pursue a terminal degree (e.g., PhD, EdD).

16. Estimated Costs and Sources of Financing

Estimated costs for the proposed degree are based on projections from the actual costs of the existing degree (MS in Physical Education w/ emphasis in Athletic Training). The same curriculum as in the current program will be utilized in the MS in Advanced Athletic Training. Costs pertaining to existing faculty and equipment, and course fees that have already been established, will continue, and are projected for the new iteration of the program.

Table D–Estimated Costs and Sources of Financing by Year

ESTIMATED COSTS BY YEAR						
CATEGORY	**1st**	**2nd**	**3rd**	**4th**	**5th**	**TOTALS**
Program Administration (Program administrator is a faculty member)	10,738	10,738	10,738	10,738	10,738	53,690
Faculty Salaries	60,100	60,100	60,100	60,100	60,100	300,500
Clerical/Support Personnel	10,000	10,000	10,000	10,000	10,000	50,000
Supplies and Materials	11,000	11,000	11,000	11,000	11,000	55,000
Library Resources						0
Equipment	11,000	11,000	11,000	11,000	11,000	55,000
Facilities						0
Other (Identify)						0
TOTALS	102,838	102,838	102,838	102,838	102,838	514,190
SOURCES OF FINANCING BY YEAR						
Tuition Funding	209,520	209,520	209,520	209,520	209,520	1,047,600
Program-Specific Fees	19,500 Fees currently pending approval	19,500	19,500	19,500	19,500	97,500
State Funding						0
Reallocation of Existing Funds						0
Federal Funding						0
Other Funding (Specify)						0
TOTALS	229,020	229,020	229,020	229,020	229,020	1,145,100

Year 1 Assumes 15 students @ 9 hrs each semester at resident graduate rate $485/hr
Year 2-5 Assumes 24 students @ 9 hrs per semester at resident graduate rate $485/hr
Source of Funds includes reallocation of existing revenue and resources from current program.

New Program Proposal
Bachelor of Science in Pharmaceutical Sciences
University of South Carolina

Summary

The University of South Carolina requests approval to offer a program leading to the Bachelor of Science in Pharmaceutical Sciences to be implemented in Fall 2015. The proposed program is to be offered through traditional and online instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	Not Applicable	Not Applicable
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	ACAP members expressed support for and voted to approve the proposed program.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested that the proposal be revised to make the degree requirements clearer, include course titles in the Curriculum section, and provide additional information about programmatic assessment.
Revised Program Proposal Received	12/2/2014	The revised proposal satisfactorily addressed all of the requested revisions.
CAAL Consideration	1/8/2015	Commissioners asked University representatives to explain the drop out problem that the proposed program is designed to correct. Dr. Finnigan explained that currently, students interested in becoming pharmacists must enroll in a major such as biology or chemistry and then “drop” that major when they are admitted to the College of Pharmacy as juniors or seniors. She explained that this program will allow the University to count these students as graduates and will also provide students with a credential should they not complete the PharmD program. Commissioners also discussed the enrollment chart used in the program proposal. Since the program will not lead to the enrollment of new students, the University used a cohort model to show enrollment. Commissioner Munns stated that by doing so, the proposal made it seem that the program will only admit students every

Stages of Consideration	Date	Comments
		four years. Dr. Finnigan stated that she would revise the enrollment chart to show total enrollment. Commissioners also questioned the need for additional staff for the proposed program. Dr. Randall C. Rowen, Interim Dean of the College of Pharmacy, explained that while the proposed program will not require additional resources in terms of courses or facilities, but it would require the addition of someone to administer and manage the program. Dr. Finnigan then clarified that the University will not hire additional staff for the program, but that the program administration will result from a reallocation and reassignment of duties for an existing faculty member. Commissioners also discussed accreditation. Dr. Finnigan explained that the Accreditation Council for Pharmacy Education (ACPE) only accredits doctoral programs. Commissioner Munns referenced the proposal which states that "Accreditation approval from the ACPE is not required for the pre-professional component of the B.S. in Pharmaceutical Sciences since the ACPE gives colleges of pharmacy the authority to independently select pre-professional coursework as long as those courses are similar to the pre-professional curriculums in peer institutions." He then asked whether the pre-professional courses are similar to those at peer institutions. Dr. Finnigan assured the Committee that the pre-professional courses are similar.
Revised Program Proposal Received	1/20/2015	The enrollment chart was revised to show total enrollment.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program leading to the Bachelor of Science in Pharmaceutical Sciences to be implemented in Fall 2015.

Committee Member Questions and CHE/Institutional Responses:
University of South Carolina Columbia, B.S., Pharmaceutical Sciences

QUESTION: pg 4, section 4 b, the three objectives: 1) please explain the drop out problem this is designed to fix, 2) even if fixing the accounting peculiarity is a valid objective, I would think that it would rank behind providing post graduate opportunities, and opportunities for career changes (i.e., student outcomes prioritized over administrative accounting) -- please discuss.

INSTITUTIONAL RESPONSE: The "drop out problem" may be described as follows. Because there currently exists no undergraduate degree in Pharmacy, freshmen students intending to pursue a career in pharmacy must declare a major in some other field, usually biology or chemistry. At the point where these students are accepted into the Doctor of Pharmacy (PharmD) program as rising juniors or seniors, they drop out of their previous biology or chemistry major, and thus are not eligible to be counted in university baccalaureate graduation rates. They are in effect deprived of a USC credential that acknowledges the first part of their undergraduate work. The "institutional graduation rates" objective was added to address this institutional concern, and the proposed B.S. in Pharmaceutical Sciences will enable offering a baccalaureate degree for admitted PharmD students at the end of their second professional year.

It was not the intention of the College of Pharmacy to rank the purposes of the B.S. in Pharmaceutical Sciences in order of importance. Section 4 b) is a listing, not a ranking, of the objectives behind offering the degree. The "post-graduate opportunities" and "career changer" objectives address the interests of students, whereas the "institutional graduation rates" objective addresses those of the institution.

While the PharmD is the required degree to practice pharmacy in the U.S., there will be students who would like to earn a baccalaureate degree in addition to their PharmD for sentimental reasons. There will be a small number of students who plan to pursue a post-Doctor of Pharmacy degree program not offered by the College of Pharmacy (e.g. law, medicine, or biological sciences). The B.S. in Pharmaceutical Sciences degree will be helpful for career changers who withdraw prior to earning the PharmD who plan to pursue occupations or graduate and professional programs in which a baccalaureate is required.

QUESTION: Pg 7, total enrollment matrix. Please explain. The enrollment numbers imply that USC will only accept students to this program every four years, and it presents a very uneven work load (3405 credit hours of production one semester, all the way down to only 924 teaching hours in another semester). But the staffing on page 17 is flat at 4 FTE for every semester. Please explain how this works, and how it can be an efficient use of resources.

INSTITUTIONAL RESPONSE: USC accepts students into the program every year.

The enrollment numbers in section 7 represents one cohort group of students that begins with the freshmen year and ends with the second year of the professional program when the B.S. degree in Pharmaceutical Sciences is conferred. At the end of the second professional year the student would have completed 128 credit hours to earn the BS in Pharmaceutical Sciences degree. The 3405 hours represents the average number of new freshmen and transfer students multiplied by average number of class hours (15) these students will take in their first semester at USC. Admission into the professional program is highly competitive. Based on past

admissions data, slightly over half of the number of pre-pharmacy students who apply are accepted into the professional program their junior year. The 924 teaching hours is reflective of the number of students in that cohort who are projected to enroll into the professional program. The difference in credit hours load will not impact existing university resources since the enrollment numbers are reflective of the average number of pre-pharmacy students accepted into the SCCP, are accepted into other colleges of pharmacy, or who change major as undergraduates since the 2010-2011 academic year.

The FTE totals are representative of new and continuing cohorts of pre-professional and professional students. For example, faculty who primarily serve the professional students through instruction will instruct first or second year pharmacy students each semester. Staff who primarily serve pre-professional students through academic advisement will advise freshmen and sophomore pre-pharmacy students each semester. Since the FTE totals are representative of the teaching, administrative, and advisement loads for the past several years, the COP does not foresee that the B.S. degree will impact existing university resources.

QUESTION: Pg 8. Note J does not seem to be referenced anywhere. Please delete or explain.

INSTITUTIONAL RESPONSE: J represents a new cohort. If the j population needs to be referenced on the projected total enrollment table (7a), j can be added to the first box in the 2019-20 year under Fall Headcount. The other letters in the 2019-20 row can be deleted since those letters are already defined in the previous years.

QUESTION: Pg 16. If there are no new students, no new courses, no new facilities, why does the administration need to grow by one assistant dean? What does this cost?

INSTITUTIONAL RESPONSE: While the B.S. degree will not require additional resources in terms of courses or facilities, it would require the addition of someone to administer and manage the program. With the addition of a new program in the College of Pharmacy, the need for oversight, coordination, problem resolution, student advising, etc., requires the appointment of a 0.5 FTE Assistant Dean.

As indicated in section 16 b), administration costs are projected by the salary and fringe benefits of the Assistant Dean for Undergraduate Programs.

QUESTION: Pg 18. Accreditation. Makes the case that pre-professional courses do not need to be accredited as long as they are consistent with curriculums of peer institutions. But the proposal makes the point in page 6 that USC requires only 66 credit hours and others require 90 hours. This does not seem to be consistent with peer programs. Please explain. Additionally, even if accreditation were not to be a problem, how can USC achieve the same quality, scope and depth of curriculum in 66 hours as others do in 90 hours?

INSTITUTIONAL RESPONSE: The difference in credit hours within the undergraduate components of the B.S in Pharmaceutical Sciences versus the programs at peer institutions is indicative of the number of years students spend in the professional program. USC will offer the baccalaureate degree after two professional years of professional study while peer institutions require just one year of professional study. Since most baccalaureate degree programs in the state require at least 120 credit hours, peer institutions must require an additional year of undergraduate study so their students can meet minimum credit hour requirements after one year of pharmacy school.

Whether a student enrolls into the SCCP from one of the 90 hour programs or from USC's pre-pharmacy program), ALL students must take the 66 hours of pre-requisite requirements outlined in the pre-pharmacy curriculum – see undergraduate requirements in section 8 a). The bulk of the undergraduate coursework in the B.S. in Pharmaceutical Sciences and the programs at the peer institutions will be the same.

In terms of undergraduate coursework taken in addition to the 66 hours in the pre-pharmacy curriculum, programs at peer institutions may encompass coursework (e.g. math courses beyond the calculus and statistics SCCP requirement) that are required to obtain a baccalaureate degree at the respective institution, but may not have any impact on the ability of incoming students to progress through the professional program.

South Carolina College of Pharmacy

University of South Carolina Campus

Proposal for

Bachelor of Science in Pharmaceutical Sciences

_____
Harris Pastides, President, University of South Carolina

_____
Date

College Contacts
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2. Classification

Program Title:	Bachelor of Science in Pharmaceutical Sciences
Concentrations, options, and tracks:	None
Academic Unit:	College of Pharmacy
Designation, type, and level of degree:	New four-year Undergraduate Baccalaureate Program
Proposed Implementation:	Fall 2015
CIP Code:	51.2099
Site:	University of South Carolina, Columbia. SC
Program qualifies for supplemental Palmetto Fellows Scholarship and Life Scholarship awards:	Yes
Delivery Mode:	75% traditional and 25% distance. During the first two years of the program, students will take classes on the USC Columbia campus. During the last two years of the program, some courses are taught via "live" streaming video from the Medical University of South Carolina Campus of the South Carolina College of Pharmacy.
Area of Certification:	None for this program; however program graduates may go on to complete the Doctor of Pharmacy program and pass the North American Pharmacists Licensure Examination (NAPLEX) and Multistate Pharmacy Jurisprudence Examination (MPJE), enabling them to practice pharmacy in the state

3. Institutional Approval

Approved by the Office of the Provost on August 15, 2014

Approved by the Office of the President on August 18, 2014

4. Purpose

a) The B.S. in Pharmaceutical Sciences degree program will benefit both students and USC. The students have the ability to earn an undergraduate degree while preparing for a career in

pharmacy and the institution accurately reflects student progression, attrition, and graduation rates.

b) The addition of the B.S. in Pharmaceutical Studies will meet the following three objectives:

Count students in institutional graduation rates - students interested in pursuing a career in the profession of pharmacy are "counted" as dropouts by USC when they leave the undergraduate program to enter pharmacy school. This reflects poorly on USC even though the institution offered a rigorous academic program and the student successfully gained admission to pharmacy school. Since USC can provide both the undergraduate courses and professional program to these students, conferring a BS degree will allow these students to be rightfully counted as graduates and not drop-outs.

Enhance post-graduate opportunities - many post-graduate programs (Ph.D., M.D., D.D.S, J.D., etc.) require an undergraduate degree, so students choosing to pursue this type of a degree program do not have the credentials to gain admission until they have graduated with an undergraduate degree.

Provide employment opportunities for career changers – for students who change their career paths while in pharmacy school, they will be able to pursue other employment opportunities such as a pharmacy technician, healthcare worker, pharmaceutical industry, research assistant, regulatory affairs, etc.

5. Justification

a) The majority of students who earn the B.S. in Pharmaceutical Sciences will earn the Doctor of Pharmacy (Pharm.D.) after two additional years in the professional program. For students who earn the Pharm.D. and pursue a career in pharmacy after graduation, the B.S. degree will have no bearing on their job prospects since the Pharm.D. is now required to practice pharmacy in the United States. The job projections for students who earn the Pharm.D. are promising. According to the U.S. Bureau of Labor Statistics, the pharmacy profession is expected to grow by 14% annually. The historical national average for job placement of pharmacy students immediately upon graduation ranges between 55% to 65%. Seventy-one (71) out of the 114 students who graduated from the USC Campus of the SCCP in May 2013 had obtained jobs prior to commencement (62% job placement rate). Twenty Six (26) students continued their post-graduate training by successfully obtaining a residency. Seventeen (17) students did not have a job or residency upon graduation. To the best of our knowledge, most of these students obtained job placements within six months after graduation.

Based on past experiences with students who have left the professional program at the conclusion of the second year, it is predicted that most B.S. in Pharmaceutical Sciences students who forgo obtaining the Pharm.D. will enroll into graduate and professional degree programs that require at least a baccalaureate degree. Post-baccalaureate options for B.S. in Pharmaceutical Sciences graduates include degrees in medicine, physical therapy, public health, dentistry, veterinarian science, law, education, business, etc. Other post-baccalaureate options include graduate study in pharmaceutical, biomedical, or basic sciences. Over the past several years, a few students (<5) have enrolled in medical school prior to completing the Pharm.D. program.

The B.S. in Pharmaceutical Sciences graduates who decide not to finish a professional or graduate program will have an advantage over other Bachelor of Science degree holders applying for pharmaceutical-related jobs. After completing two years of the Pharm.D. program, the B.S. in Pharmaceutical Sciences graduates will be uniquely qualified to work in pharmaceutical sales, pharmaceutical research, drug testing, drug marketing, and drug regulation.

Other career options for B.S. in Pharmaceutical Sciences graduates who do not obtain a graduate or professional degree include entry-level careers in post-graduate research, community health, diet and nutrition, non-profit health assessment (Peace Corps or AmeriCorps), environmental protection, air quality control, consumer safety, health insurance, and health assessments in industry. Graduates will have the option of pursuing entry level health careers such as a pharmacy technician, medical assistant, medical transcriptionist, massage therapist, health technologist, physical therapist, respiratory therapist, etc. These fields may require additional training in a technical or community college.

According to the U.S. Bureau of Labor Statistics, the job outlook for several of these career areas such as a pharmacy technician (20%), health educator (21%), health information technician (22%), health records technician (22%), and health environmental scientist (15%) are at least 3 percentage points higher than the national average for all occupations.

According to the most recent *South Carolina Economic Indicator Report* conducted in 2010, the average 2006-2016 job growth rate of Healthcare Support jobs (comprised mainly of health professions jobs that do not require a post-baccalaureate degree) is 27% versus 10.9% for all occupations in South Carolina. According to the SC Works *Occupational Employment and Future Employment* table, the annual percentage growth rates for several of the health support jobs that the B.S. in Pharmaceutical Sciences students could potentially obtain is 1.9% (pharmacy technician), 1.6% (health educator), 1.7% (respiratory therapist), 1.6% (health technologist), 2.2% (community health worker), 1.8% (environmental science and protection technician) and 1.7% (dietician/nutritionist) vs. 1.1% for all occupations in South Carolina.

b) USC's primary mission is the education of the state's citizens through teaching, research, creative activity, and community engagement. The addition of the B.S. in Pharmaceutical Sciences will fulfill this mission through undergraduate and professional level instruction, research opportunities in clinical pharmacy and biomedical sciences, creative opportunities in pharmacy innovation, and for those students who earn the Doctor of Pharmacy after obtaining the baccalaureate degree, community engagement through providing advanced level pharmaceutical care to meet the medication needs of the citizenry of the South Carolina and the nation.

c) The program will not impact existing programs at the University of South Carolina (USC); it will formalize into a degree program instruction that is already taking place. The academic departments that offer the pre-requisite and general education courses during the first two years of the program will continue to do so, and South Carolina College of Pharmacy (SCCP) faculty will instruct all of the professional courses taken in the last two years as they have been doing.

d) The list of similar programs in the state includes:

Bachelor of Science in Pharmaceutical Sciences at Francis Marion University,
Bachelor of Science in Pre-professional Studies at Clemson University,
Bachelor of Science in Biochemistry at Claflin University,
Degree Plus Pre-Pharmacy Path (Bachelor of Science in Chemistry or Biology) at Presbyterian College.

e) With regard to similarities and differences between the above-listed programs and our own, Claflin University, Francis Marion University, and Clemson University have established MOU agreements with the South Carolina College of Pharmacy (SCCP) and other colleges of pharmacy where they offer a bachelor of science degree that combines undergraduate coursework and professional coursework in a Doctor of Pharmacy (Pharm.D.) program. In these bachelor degree programs, students must take a minimum of 90 hours or three years of undergraduate coursework at the degree granting institution.

Presbyterian College does not have a MOU with the SCCP, but it also has a program that combines undergraduate coursework and coursework in their Doctor of Pharmacy program.

There are several differences the B.S. in Pharmaceutical Sciences from USC will have in relation to the programs at Claflin, Francis Marion, and Clemson University. First, the proposed USC-Columbia program will allow the student to complete both the B.S. and Pharm.D. degrees within one institution (USC). Second, the USC program only requires 66 hours (approximately 2 years) of undergraduate coursework, whereas the other institutions require 90 hours (approximately 3 years) of undergraduate coursework prior to entering the professional Pharm.D. program where the remaining two years of the B.S. in Pharmaceutical Sciences are completed. ~~to earn a bachelor's degree~~. Third, USC is the only institution in South Carolina that teaches the entire pharmaceutical sciences curriculum.

6. Admission Criteria

Prospective freshmen entering the B.S. in Pharmaceutical Sciences program must meet the general admissions criteria for acceptance as outlined by the Office of Undergraduate Admissions at the University of South Carolina – Columbia. Prospective transfer students must earn a minimum GPA of a 3.0 upon completion of twelve college-credit courses.

Admission into the professional component of the degree program is based on the completion of a national and supplemental application, cumulative and pre-requisite GPA, the Pharmacy College Admissions Test (PCAT), an interview, and letters of recommendation.

7. Enrollment

a) Projected Total Enrollment

Projected Enrollment: Cohort totals for the first year enrollment of new freshmen, new transfers, and readmit students from years one to four

PROJECTED TOTAL ENROLLMENT						
YEAR	**FALL**		**SPRING**		**SUMMER**	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2015– 16	227(a)	3405	215(b)	3225	70(c)	404
2016 – 17	182(d)	2730	164(e)	2460	12(f)	48
2017 – 18	69(g)	1173	69	1104	69(h)	276
2018– 19	66(i)	990	66	924	66	264
2019 – 20	227(a)	3405	215(b)	3225	70(c)	404

Based on enrollment during Fall 2011-Fall 2013

b) Discussion of how these estimates were made

(a) Includes approximately 227 new students (including new freshmen/transfers from the summer semester, new transfers, and readmits).

Note: the average three-year total enrollment for new and continuing pre-professional students (254 continuing students) has been 481 total students.

(b) First year spring semester total of 215 (227 students minus an average of 12 new students from the summer/fall semesters who will change into another degree program between the fall and spring semesters of the first year).

(c) Most students take a 4 hour lab course.

(d) Second year fall semester total of 182 (215 students minus 33 students who change into another degree program).

(e) Second year spring semester total of 164 (182 minus 18 students who change into another degree program).

(f) Approximate number of students accepted into the professional program who have one or more pre-requisites to complete before professional program enrollment.

(g) First semester of the third year or first professional year total of 69 (164 students minus 51 pre-professional applicants who will apply, but who will not be accepted into the professional program, 7 students who enroll into the professional program at MUSC, and 37 students who do not apply into the professional program and change into another degree program).

Note: The 51 students not accepted into the professional program will typically change into another degree program that contains the majority of coursework from the first two years of the B.S. in Pharmaceutical Sciences program such as biological sciences, chemistry, biochemistry, public health (B.S.), exercise science (B.S.), and biomedical engineering. These students may reapply to enter the professional program in their senior year or pursue a different baccalaureate degree. An average of 7 -10 re-applicants are accepted into the professional program each year. After the conclusion of the second professional year, these students are eligible for the B.S. in Pharmaceutical Sciences if they do not have a prior degree and meet all requirements.

(h) Professional students will take a 4-hour rotation between the first and second years (third and fourth years in B.S. degree) in the summer.

(i) Number of students who will graduate with a B.S. in Pharmaceutical Sciences minus the approximate number of students who will not persist between the first and second professional years.

Projected Enrollment: Total enrollment based on the enrollment of new freshmen, new transfers, readmit students, continuing undergraduates, and students in professional (pharmacy) program

PROJECTED TOTAL ENROLLMENT						
YEAR	**FALL**		**SPRING**		**SUMMER**	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2015– 16	481(a)	7215	442(b)	6630	200(c)	800

2016 – 17	550(d)	8250	511(e)	7665	200(f)	800
2017 – 18	616(g)	9240	577 (h)	8655	200 (i)	800
2018– 19	616	9240	577	8655	200	800
2019 – 20	616	9240	577	8655	200	800

Based on enrollment during Fall 2011-Fall 2013

b) Discussion of how these estimates were made

(a) In Year 1 of the program, headcount will consist of 227 new enrollees plus 254 continuing second- year students who will transfer to the BS in Pharmaceutical Sciences major.

(b) Spring semester total of 442 (481 minus an average of 39 first and second year students from the summer/fall semesters who will change into another degree program by the spring semester).

(c) Most students take a 4 hour lab course.

(d) Includes 69 continuing students from previous year admitted to the PharmD in their third year; 227 new freshmen, new transfers, readmit students; and 254 continuing second year undergraduates.

(e) Spring semester total of 511 (550 minus an average of 39 first and second year students from the summer/fall semesters who will change into another degree program by the spring semester)

(f) First and second year students only. Third year students will take a summer rotation that is required for the Doctor of Pharmacy, but not the B.S. degree.

(g) Includes 227 new enrollees, 254 continuing second-year students, 69 students admitted to the PharmD in their third year, and 66 students (69 students minus an average of three students who will not advance from years three to four) moving from their third year into their fourth year/second professional year.

(h) Spring semester total of 577 (616 minus an average of 39 first and second year students from the summer/fall semesters who will change into another degree program by the spring semester.)

(i) First- and second year students only. Third and fourth year students will take a summer rotation that is required for the Doctor of Pharmacy, but not the B.S. degree.

c) Transfers from Other Colleges of Pharmacy

Approximately 30 students from other degree programs at USC will transfer into the program each pre-professional year. Approximately 69 students will be accepted into the professional program at the USC Campus of the SCCP. Approximately 66 students will earn the B.S. in Pharmaceutical Sciences at the end of the second professional year. Transfers from other colleges of pharmacy are rare. The USC Campus of the SCCP receives about one to two transfers from the MUSC Campus of the SCCP or from other schools of pharmacy each year. However, those students must meet all pre-professional and professional requirements to earn the B.S. degree.

8. Curriculum

a) Sample Curriculum

Pre-Professional Curriculum (66 Hours)		
Year One – Fall Semester		
Course	Credit Hours	Carolina Core Component
ENGL 101 *Critical Reading & Comprehension*	3	CMW *Effective, Engaged, and Persuasive Communication: Written Component*
MATH 122 *Calculus for Business Administration & Social Sciences OR MATH 141 Calculus I*	3	ARP *Analytical Reasoning and Problem-Solving*
BIOL 101/101L *Principles of Biology I & Lab*	4	SCI *Scientific Literacy*
CHEM 111/111L *General Chemistry I & Lab*	4	SCI
UNIV 101 *The Student in the University*	3	
		Total = 17 Hours
Year One – Spring Semester		
ENGL 102 *Rhetoric & Composition*	3	CMW + INF *Information Literacy*
STAT 201 *Elementary Statistics* OR STAT205 *Elementary Statistics for Biological and Life Sciences*	3	ARP
BIOL 102/102L *Principles of Biology II & Lab*	4	
CHEM 112/112L *General Chemistry II & Lab*	4	
Any AIU *Aesthetic & Interpretive Understanding* option	3	AIU
		Total = 17 Hours
Year Two – Fall Semester		
BIOL 243 *Human Anatomy & Physiology I*	3	

CHEM 333 *Organic Chemistry I* & CHEM 331L *Organic Lab I*	4	
PHYS 201 *General Physics I*	3	
ECON 224 *Introduction to Economics* ORECON 221 *Principles of Microeconomics,* OR ECON 222 *Principles of Macroeconomics*	3	
PSYC 101	3	GSS *Global Citizenship and Multicultural Understanding: Social Science*
		Total = 16 Hours
Year Two – Spring Semester		
BIOL 244 *Human Anatomy & Physiology II*	3	
CHEM 334 *Organic Chemistry II* & 332L *Essentials of Organic Lab II*	4	
BIOL 250 *Microbiology*	3	
SAEL 200 *Social Advocacy & Social Life*	3	CMS *Effective, Engaged and Persuasive Communication: Spoken Component* + VSR *Values, Ethics, and Social Responsibility*
Any GHS option *Global Citizenship and Multicultural Understanding: Historical Thinking*	3	GHS
		Total = 16 Hours
GFL requirement met with a score of 2 or higher on foreign language placement test		
Professional Curriculum (62 Hours)		
Year Three – Fall Semester		
SCCP 602 *Foundations of Pathophysiology & Pharmacology I*	2	
SCCP 607 *Dosage Forms and Drug Delivery Systems*	4	
SCCP 615 *Pharmaceutical Biochemistry*	3	
SCCP 621 *Foundations of Pharmaceutical Chemistry & Pharmacogenomics I*	3	
SCCP 650 *Introduction to Pharmacy Practice*	2	
SCCP 656 *Pharmacy Calculations*	1	
SCCP 657 *Medical Terminology*	1	

SCCP 680 *Intro. to Drug Information*	1	
		Total = 17 Hours
Year Three – Spring Semester		
SCCP 603 *Foundations of Pathophysiology & Pharmacology II*	3	
SCCP 610 *Microbiology & Immunology*	4	
SCCP 616 *Pharmaceutical Biotechnology*	2	
SCCP 622 *Foundations of Pharmaceutical Chemistry & Pharmacogenomics II*	4	
SCCP 690 (IP 710) *Transforming Health Care*	2	
SCCP 661 *Clinical Applications II*	1	Integrative Course that meets INF, CMS, and SCI learning outcomes of the Carolina Core
		Total = 16 Hours
Year Four – Fall Semester		
SCCP 710 *Biopharmaceutics and Pharmacokinetics*	3	
SCCP 722 *Pathophysiology & Pharmacology I*	3	
SCCP 750 *Self-Care and Complementary Med.*	4	
SCCP 760 *Clinical Applications III*	1	
SCCP 772 *Pharmacotherapy I*	4	
		Total = 15 Hours
Year Four – Spring Semester		
SCCP 723 *Pathophysiology & Pharmacology II*	3	
SCCP 761 *Clinical Applications IV*	1	
SCCP 773 *Pharmacotherapy II*	4	
SCCP 780 *Outcomes Design and Assessment*	3	
SCCP 890 *Clinical Pharmacokinetics*	3	
		Total = 14 Hours

b) No new courses are currently projected at the pre-professional and professional levels. Programming changes for the first two years in the curriculum that are approved through the SCCP Curriculum Committee will also be approved through USC's Faculty Senate and all institutional bodies involved in the approval of course curriculum changes. Programming

changes for the last two years in the curriculum will be approved through the SCCP Curriculum Committee

9. Assessment

a) During the last two years of the curriculum, students complete the following assessments related to the program learning outcomes:

- Review and assess case study exercises to demonstrate student ability to understand patient medical situations and provide appropriate drug therapy monitoring.
- Complete exercises demonstrating ability to work and communicate in an interprofessional environment.
- Demonstrate basic competencies in sterile and non-sterile compounding by completion of practice exams and media fill exercises.
- Complete competency exams demonstrating familiarity with the top 300 oral/topical drug products and top 100 IV products.
- Complete case study, communication, and video exercises demonstrating knowledge in self-care, complementary, and preventive medicine.
- Counsel standardized patients on the appropriate use of medications.
- Successful completion of OSCE/OSLE Evaluations/Analytical Checklists; 70% performance or remediation required.

b) The following program goals and student learning outcomes are assessed during the third and fourth years of the program:

Goal 1: Provide pharmaceutical care in cooperation with patients, prescribers, and other members of an inter-professional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, economic, and professional issues, emerging technologies, and evolving biomedical, socio-behavioral, and clinical sciences that may impact therapeutic outcomes

Outcome 1:
Students will acquire and be able to apply knowledge in the biological, social, pharmaceutical, and clinical sciences as a foundation for pharmaceutical care (including but not limited to the following courses: anatomy, physiology, biochemistry, pathophysiology, immunology, microbiology, pharmaceutics, biopharmaceutics, molecular biology, pharmaceutical calculations, pharmacokinetics, medicinal chemistry, pharmacology, drug information, pharmacogenomics, pharmacoeconomics, outcomes, statistics, pharmacy law, ethics, pharmacy practice, and therapeutics).

Assessment
-Academic performance based on course grades. 95% or above pass rate for required courses (final course grades 70 or above).
-Review and assess case student exercises to demonstrate student ability to understand patient medical situations and provide appropriate drug therapy monitoring.
-Complete competency exams demonstrating familiarity with the top 300 oral/topical drug products and top 100 IV products.

Outcome 2:
Students will develop the skills and knowledge to provide patient-centered care.

Assessment
-Academic performance based on course grades: 95% or above pass rate (final course grades 70 or above) for courses with major emphasis on patient-centered care
-Successful completion of OSCE/OSLE Evaluations/Analytical Checklists; 70% performance or remediation required.
-Ability to effectively counsel standardized patients on the appropriate use of medications.

Outcome 3:
Students will acquire the knowledge to provide population-based care.

Assessment:
-Academic performance based on course grades: 95% or above pass rate for courses with major emphasis on providing population-based care.
-Successful completion of OSCE/OSLE Evaluations/Analytical Checklists; 70% performance or remediation required.
-Review and assess case study exercises to demonstrate student ability to understand patient medical situations and provide appropriate drug therapy monitoring.

Goal 2:
Graduates will manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.

Outcome 1:
Students will develop the knowledge and skills to manage human, physical, medical, informational, and technological resources.

Assessment:
-Academic performance based on course grades: 95% or above pass rate for courses with major emphasis on management issues in patient care.
-Successful completion of online exercises demonstrating ability in drug information retrieval and literature searches.

Outcome 2:
Students will master appropriate principles to manage medication use systems.

Assessment:
-Academic performance based on course grades: 95% or above pass rate for courses with major emphasis on providing population-based care.
-Demonstrate basic competencies in sterile and non-sterile compounding by completion of practice exams and media fill exercises.

Goal 3:
Promote health improvement, self-care (including but not limited to nonprescription, complementary and alternative medicines), wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an inter-professional team of health care providers

Outcome 1:

Graduates will develop skills that will allow them to promote health improvement, self-care (including but not limited to nonprescription, complementary and alternative medicines), wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers.

Assessment:
-Academic performance based on course grades: 95% or above pass rate for courses with major emphasis on health promotion and interprofessional practice.
-Complete case study, communication, and video exercises demonstrating knowledge and ability in self-care, complementary, and preventive medicine.
-Completion of assigned interprofessional exercises with students from medicine, nursing, public health, and social work; exercises demonstrate ability to work and communicate in an interprofessional environment.

c) Program changes based on student performance assessment data are evaluated upon completion of the Doctor of Pharmacy degree and passing scores on the NAPLEX and MPJE two years after of the completion of the B.S. in Pharmaceutical Sciences. These data is evaluated by the SCCP Assessment Committee and the SCCP Curriculum Committee. Recommendations for changes in the academic program are proposed by these Committees, and are brought to the faculty for vote and then implementation, if approved.

10. Faculty

a) Faculty List Table

Table B– Faculty List

List Staff by Rank (e.g. Professor #1, Professor #2, Associate Professor #1, etc.)	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Professor #1	PhD	Outcomes Sciences/Medication Adherence	Y
Associate #1 Professor	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #2	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #3	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #4	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #5	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #6	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #7	PhD	Drug Discovery/Biomedical Sciences	Y
Associate Professor #8	Pharm.D.	Clinical Pharmacy	Y

List Staff by Rank (e.g. Professor #1, Professor #2, Associate Professor #1, etc.)	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Associate Professor #9	Pharm.D.	Clinical Pharmacy	Y
Assistant Professor #1	PhD	Drug Discovery/Biomedical Sciences	Y
Assistant Professor#2	Pharm.D.	Clinical Pharmacy	Y
Assistant Professor#3	Pharm.D.	Clinical Pharmacy	Y
Assistant Professor#4	Pharm.D.	Clinical Pharmacy	Y
Assistant Professor#5	Pharm.D.	Clinical Pharmacy	Y
Assistant Professor#6	Pharm.D.	Clinical Pharmacy	Y

b) Since the faculty and staff at both the pre-professional and professional levels already provide the necessary instruction and advisement to facilitate the program, no new hires are expected for students pursuing the B.S. in Pharmaceutical Sciences.

c) The addition of the B.S. in Pharmaceutical Sciences will require the addition of one assistant dean who will provide 50% effort to direct and oversee the BS in Pharmaceutical Sciences degree program. The Assistant Dean will be appointed from the existing faculty of the College of Pharmacy.

d) No new changes to the institutional plan for faculty development are expected with approval of this program, since the curriculum has been in place.

e) Full-time equivalent (FTE) faculty/staff include those members of the instruction/research staff who are employed full time and whose major regular assignment is instruction, including those with released time for research. Also, includes full-time faculty for whom it is not possible to differentiate between teaching, research and public service because each of these functions is an integral component of his/her regular assignment.

f) Unit Administration, Faculty, and Staff Support table (Table C)

UNIT ADMINISTRATION, FACULTY, AND STAFF SUPPORT						
YEAR	**NEW**		**EXISTING**		**TOTAL**	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2015– 16	0	0	1	0.5	1	0.5
2016 – 17	0	0	1	0.5	1	0.5
2017 – 18	0	0	1	0.5	1	0.5
2018– 19	0	0	1	0.5	1	0.5
2019 – 20	0	0	1	0.5	1	0.5
Faculty						
2015 – 16	0	0	16	4	16	4
2016 – 17	0	0	16	4	16	4
2017 – 18	0	0	16	4	16	4
2018 – 19	0	0	16	4	16	4

2019 – 20	0	0	16	4	16	4
Staff						
2015 – 16	0	0	4	3	4	3
2016 – 17	0	0	4	3	4	3
2017 – 18	0	0	4	3	4	3
2018 – 19	0	0	4	3	4	3
2019 – 20	0	0	4	3	4	3

11. Physical Plant

a) The existing physical plant is adequate to provide physical accommodations for the B.S. in Pharmaceutical Sciences since the physical plant currently accommodates pre-professional and professional coursework students will take in the curriculum.

b) Since the physical plant requirements needed to administer both the pre-professional and professional components of the B.S. in Pharmaceutical Sciences currently exists, no additions to the existing physical plant are needed.

12. Equipment

Since the equipment needed to administer the B.S. in Pharmaceutical Sciences at the pre-professional and professional levels of the program currently exists, no new major equipment will be needed for the program.

13. Library Resources

a) The B.S. in Pharmaceutical Sciences will not require additional library resources. During the pre-professional component of the program, students will have the same access to library resources as undergraduates in other programs at USC. During the professional component of the B.S. degree, students will have access to a joint electronic database of online periodicals, journals, clinical collections, case studies, citation indexes, etc. between the USC and MUSC Campuses of the SCCP.

Due to continuous innovation and changing practices and standards in the pharmacy field, printed library resources are not commonly used by students in the College. Library holdings are all online on the joint USC and MUSC database for the SCCP.

b) The B.S. in Pharmaceutical Sciences will not require the purchase of independent acquisitions. Since the joint electronic database consists of online sources that do not require a contract or subscription, the cost to maintain the database is nominal.

c) Electronic resources are commonly shared between professional students in the USC and MUSC Campuses of the SCCP. Students in the professional component of the B.S. in Pharmaceutical Sciences may utilize PASCAL access resources in MUSC's electronic catalog.

14. Accreditation, Approval, Licensure, or Certification

a) The professional component of the B.S. in Pharmaceutical Sciences is subject to accreditation standards and guidelines of the Accreditation Council for Pharmacy Education (ACPE). The South Carolina College of Pharmacy is fully accredited until 2017. ACPE requires periodic monitoring and updates for the professional program within the multi-year accreditation cycle. The next ACPE self-study process for accreditation review will occur during 2016.

Accreditation approval from the ACPE is not required for the pre-professional component of the B.S. in Pharmaceutical Sciences since the ACPE gives colleges of pharmacy the authority to independently select pre-professional coursework as long as those courses are similar to the pre-professional curriculums in peer institutions. Additional accreditation is not required for the professional component of the B.S. degree since the Pharm.D. is already accredited by the ACPE.

b) Licensure/certification processes: not applicable. The ACPE is the only accrediting body outside the Commission and the Board of Trustees for the USC.

c) Teacher education: not applicable. Neither the B.S. in Pharmaceutical Sciences nor the Doctor of Pharmacy has a teacher education focus.

15. Articulation

a) Students from two-year institutions may enter the B.S. in Pharmaceutical Sciences upon completion of USC admissions requirements and after obtaining a minimum GPA of a 3.0 after the completion of at least twelve college credit courses.

b) After completing the B.S. in Pharmaceutical Sciences, graduates may earn the Doctor of Pharmacy (Pharm.D.) upon completion of two additional years of professional study.

c) The 3 + 1 programs at Clemson University, Francis Marion University, and Claflin University allow students to earn a baccalaureate degree at the host institution after three years of undergraduate coursework and one year of professional coursework in the SCCP. Since these institutions are not obligated to the Carolina Core and require just one year of professional coursework, these students will not qualify for the B.S. in Pharmaceutical Sciences at USC.

However, any student from another state institution who has met all the pre-professional requirements of the B.S. in Pharmaceutical Sciences, is successfully admitted into the professional program prior to obtaining a baccalaureate degree from another institution, and completes the first two years of the professional program, is eligible for the degree. This information will be posted **o**n the SC Trac website.

16. Estimated Costs and Sources of Financing

a) Estimated Costs and Sources of Financing by Year (Table D)

ESTIMATED COSTS BY YEAR						
CATEGORY	**1st**	**2nd**	**3rd**	**4th**	**5th**	**TOTALS**
Program Administration	$70,000	$71,400	$72,830	$74,290	$75,800	$364,320
Faculty Salaries	$560,000	$570,200	$581,600	$593,200	$605,100	$2,910,100
Graduate Assistants	0	0	0	0	0	0
Clerical/Support Personnel	$230,000	$234,600	$239,300	$244,100	$249,000	$1,197,000
Supplies and Materials	$10,000	$10,000	$10,000	$10,000	$10,000	$50,000
Library Resources	0	0	0	0	0	0
Equipment	0	0	0	0	0	0
Facilities	0	0	0	0	0	0
Other (Identify)	0	0	0	0	0	0
TOTALS	$870,000	$886,200	$903,730	$921,590	$939,900	$4,521,420
SOURCES OF FINANCING BY YEAR						
Tuition Funding	$3,240,000	$3,337,200	$3,437,316	$3,540,36	$3,646,650	$17,201,602
Program-Specific Fees	0	0	0	0	0	0
State Funding	0	0	0	0	0	0
Reallocation of Existing Funds	0	0	0	0	0	0
Federal Funding	0	0	0	0	0	0
Other Funding (Specify)	0	0	0	0	0	0
TOTALS	$3,240,000	$3,337,200	$3,437,316	$3,540,436	$3,646,650	$17,201,602

b) Tuition and Fees are calculated at a 3% increase per year. Assumes 135 students paying resident tuition of approximately $24,000/year.

The program administration costs are projected by the salary and fringe benefits of the Assistant Dean for Undergraduate Programs.

The faculty costs are based on 4 FTE's providing the instruction to the students even though 16 faculty members will share in the teaching responsibilities.

Clerical/Support personnel are projected by 75% effort of 3 student advisors and 1 administrative assistant.

Supply costs reflect office and technology supplies.

c) No new costs to the institution or college are expected since the program is essentially being taught without recognizing or conferring the BS degree.

The college expects only limited additional costs for this new degree program since all of the courses and support personnel are currently in place in the institution and the college.

d) No unique costs or special state appropriations will be required or requested.

Additional costs are expected for an administrative supplement and support for the Assistant Dean which will be relocated from existing funds in the college budget.

New Program Proposal
Bachelor of Science in Mathematics
With tracks in Mathematical Sciences and Secondary Teacher Education
University of South Carolina Beaufort

Summary

University of South Carolina Beaufort requests approval to offer a program leading to the Bachelor of Science in Mathematics with tracks in Mathematical Sciences and Secondary Mathematics Certification to be implemented in Fall 2015. The proposed program is to be offered through traditional instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval to the Commission. The full program proposal and a letter of support for the program from Dr. Jane Upshaw, sent in response to CHE staff questions, is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	2/15/13	Not Applicable
Program Planning Summary considered by ACAP through electronic review	4/1/13	Dr. Robert Mignone, Chair of the Department of Mathematics, at the College of Charleston expressed concerns about the mathematics content courses in Secondary Mathematics Certification track, but Dr. Lynne Ford, Associate Provost at the College, stated that she supported moving the proposal forward. CHE staff requested more recent and additional data be included in the proposal (local districts, CERRA Supply and Demand data, and job market for mathematical sciences graduates). Staff also asked for justification for waiting until the third year of the program to hire a secondary education faculty member.
Program Proposal Received	9/15/14	The proposal addressed the concerns expressed by the College of Charleston regarding the curriculum. As a result, the required credit hours for the Secondary Mathematics Certification track were increased from 36 to 44. The revised proposal also updated current employment data. Finally, it responded to CHE staff questions about faculty by stating that institution plans to hire two new mathematics education faculty members, one in 2014-15 and the other in 2015-16.
ACAP Consideration	10/16/14	ACAP approved the full proposal.

Stages of Consideration	Date	Comments
Comments and suggestions from CHE staff sent to the institution	10/28/14	CHE staff sent a list of additional questions regarding the proposal, including suggested revisions.
Revised Program Proposal Received	12/1/14	CHE Staff received a letter from Dr. Jane Upshaw, Chancellor of USC Beaufort, on December 1, 2014. The letter was a response to the questions and concerns CHE staff sent on October 28, 2014. The letter serves in place of any additional revisions, as Dr. Upshaw addressed all CHE staff concerns.
CAAL Consideration	1/8/15	The concentration in Secondary Mathematics Certification was changed to Secondary Teacher Certification as a result of questions from CAAL. CAAL approved the full proposal

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program leading to the Bachelor of Science in Mathematics with tracks in Mathematical Sciences and Secondary Teacher Education at USC Beaufort to be implemented in Fall 2015. Per the standard process involved in implementing all educator preparation programs, the institution must also 1) receive approval from the State Board of Education prior to implementation, and 2) seek appropriate national recognition for secondary mathematics by the National Council of Teachers of Mathematics (NCTM).

Committee Member Questions and CHE/Institutional Responses:
University of South Carolina Beaufort, B.S., Mathematics with tracks in Mathematical Sciences and Secondary Teacher Education

QUESTION: Pg 3 and 16, process time... why did it take so long from the planning summary to submittal of the proposal?

INSTITUTIONAL RESPONSE: Item 17: Programs for Teachers and Other School Professionals (only) in Appendix B of the Commission's document Policies and Procedures for New Academic Program Approval and Program Termination is required for this proposal. Items 17a and 17b address SCDE and SPA (NCTM) requirements. These two items account for the final 85+ pages of the proposal. As such, time addressing these items thoroughly and carefully was deemed necessary and appropriate.

QUESTION: Pg 4, name... why not change the name?

INSTITUTIONAL RESPONSE: We will change the track name *Secondary Mathematics Certification* to *Secondary Teacher Education* as has been suggested.

QUESTION: Pg 9, program changes... please justify the belief that there is no opportunity for a school to make changes once a proposal is submitted

INSTITUTIONAL RESPONSE: SCCHE guidelines (October 2012, 2014) state that:
Proposals for new programs must be submitted in the appropriate format ("online" added in 2014) by the President or Chief Academic Officer of the institution or system to the Director of Academic Affairs and Licensing with a letter of transmittal.

Once the USC President and Board of Trustees sign the proposal and send it to the SCCHE, substantive changes in the program proposal are not considered. Changes that are deemed non-substantive may be and have been made after that date, for example, in response to ACAP suggestions. Following the USC Board of Trustees approval, however, substantive changes would alter the original intent or design of the degree. This would require us to submit a revised proposal through faculty and administrative offices and CHE committees, putting us back another two years. The tracking document for the program is provided to illustrate the steps in the approval process (attached).

QUESTION: Pg 9, number of electives. It appears that 1/4 of the curriculum is elective (30 of 120)... It's claimed that this is more than other peer schools and that this is good. What courses are USCB not requiring that the peer schools do, and why?

INSTITUTIONAL RESPONSE: It has not been claimed that USCB offers more or less in free electives in the Mathematical Sciences degree track than similar institutions. For example, while our proposal lists 22-32 hours of free electives, the College of Charleston offers 24-29 hours of free electives in their program. It is claimed, however, that differences in free electives at similar institutions are accounted for primarily by General Education/Liberal Arts Core requirements rather than by mathematics requirements. For example, while USCB's proposal lists 27-32 credit hours in General Education requirements, the College of Charleston lists 36-41 hours, Winthrop University lists 38-54 (including Foreign Language), and Charleston Southern University lists 48 hours. Moreover, the mathematics and associated curricular components (e.g., statistics, programming, etc.) requirements for the Mathematical Sciences track in our

proposal are strong by any reasonable standard. The degree will require as much or more in these areas than seven similar peer programs in the state. The curriculum design was guided by the Mathematical Association of America's recommendations from the Committee on the Undergraduate Program in Mathematics. That committee's purpose is to make recommendations to guide mathematics departments in designing quality curricula for their undergraduate students.

QUESTION: Pg 31, cost. Program plans 3 new faculty for the period and only 8 new students each year. Is the ratio of three faculty for 32 students an appropriate and cost effective ratio?

INSTITUTIONAL RESPONSE: We used a conservative growth model to cover costs. Eight students per year in the program is really a breakeven point. We fully expect many more students to enroll in the program as has been our experience in Computational Science. In Computational Science we have more than doubled our original projections for student growth each year.

UNIVERSITY OF
SOUTH CAROLINA
BEAUFORT

November 25, 2014

Jane T. Upshaw
Chancellor

Paula A. Gregg, Ph.D.
Program Manager, Academic Affairs
SC Commission on Higher Education
1122 Lady Street, Suite 300
Columbia, SC 29201

Dear Dr. Gregg

The University of South Carolina Beaufort Faculty and Administration have reviewed the comments and concerns you sent from the CHE staff about the proposal for the B.S. in Mathematics with tracks in Mathematical Sciences and Secondary Mathematics Certification that was approved at ACAP on October 16, 2014. This letter provides USCB's response to each of the key concerns you have articulated in your email:

CHE Staff Concern #1
Staff have concluded that this program is not ready to go forward as submitted. USCB doesn't currently have a mathematical sciences undergraduate degree program and attempting to begin a new program with concentrations in both mathematical sciences and secondary mathematics certification without the support of appropriate faculty in both mathematics and education is not recommended.

a. *Staff recommends USCB consider requesting a new program in mathematics initially.*
b. *Once the mathematics degree is approved; hire an appropriate education faculty member with expertise and degrees in secondary mathematics to help develop the secondary mathematics certification track.*
c. *Submit a program modification of the track in secondary mathematics certification after the B.S. in mathematics is implemented.*

Institutional Response:
USCB does not wish to defer the proposal to a later date. The proposal has been in the approval process since December 2012. CHE staff has had the Program Planning Summary for this new degree program since April 2013. The ACAP Electronic Review Distribution was on April 1, 2013 at which time USCB made suggested edits. The full program proposal has been approved by the USC President, Board of Trustees, and ACAP. "Requesting a new program in mathematics initially" then "submit[ting] a program modification of the track in secondary mathematics" as CHE staff suggests, would require the institution to begin the approval process all over again which will take two to three years. USCB has local support for the program including funding from Beaufort County. Beaufort and Jasper County School Districts are in full support of the program because secondary mathematics is a critical needs area in this part of the state, and they need qualified secondary education mathematics teachers. More information on need is included under item #4b below. Nowhere in undergraduate curricula is the symbiotic relationship between teacher education and discipline-specific study perhaps stronger than in

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mathematics. Evidence for this statement is garnered from the fact that of the 29 institutions in the state with undergraduate mathematics programs, only two do not also have South Carolina Department of Education (SCDE) approved educator preparation programs in secondary mathematics as well. More information can be found in the table under item #5 below. The proposed tracks serve to bolster each other and we do not wish to disengage them.

The Commission's document *Perspectives on Program Duplication*, authored by Dr. Gail M. Morrison in 2010, provides clarity on several important aspects of USCB's proposal as well. That document describes "acute shortages" of mathematicians and teachers in the state. The assertion presented in the document is that more programs, even at the graduate level, are desirable in these areas. Certainly, locally, there is demand for teacher preparation; again, a more full response to the issue of demand is presented under item #4b below. The Commission's historical support for the "*development of institutions into full-service institutions that offer an array of traditional arts and sciences programs as well as professional programs*" is recognized and applauded. Additionally, the statement "*access to higher education through full-service associate-degree and baccalaureate-degree granting institutions should be considered a tremendous asset*" is likewise to be commended. As such, and in meeting the needs of the Lowcountry of South Carolina, the proposal for a B.S. in Mathematics in both tracks is warranted. USCB has the faculty, planning, and resources to provide service to the region by responding to needs in both parallel tracks as described more fully in the program proposal. Secondary mathematics teacher preparation is part of USCB's 5-year strategic plan for fulfilling the institution's mission and it is our directed intention to strive to achieve that objective.

CHE Staff Concern #2
Page 1 – Classification – b. Concentrations, options, and tracks. The name "certification" may change to "licensure" within the next year. Consider calling the track for teachers, "secondary teacher education" or "secondary education."
Institutional Response:
The name "certification" is currently used in the South Carolina Education Licensure Manual (September 2003 and revised in October 2013). The name "certification" was the appropriate word to use when the Program Planning Summary was submitted to CHE on February 15, 2013, when it was distributed to ACAP electronically on April 1, 2013, and when ACAP approved it on October 16, 2014. Changing the name "*certification*" because it "*may change to licensure within the next year*" should not be a key concern for the proposal.

CHE Staff Concern #3
Page 1 - Institutional Approval. The dates for approval from USC need to be completed in the chart.
Institutional Response:
The institutional approval table was not completed because the proposal left USCB on April 21, 2014. On April 21, 2014, USCB did not know the date the President or the Board of Trustees would approve the proposal. Once it leaves USCB, we never handle the proposal again. Completing the rest of the table would require USCB to give approximate approval dates, not actual dates. If the staff requests anticipated approval dates, we will be happy to provide those approximations in the future.

Table 1.

Evaluating Unit	Approval Date
USCB Courses & Curricula	November 16, 2012
USCB Faculty Senate	November 30, 2012
USCB Chancellor	December 4, 2012

USC System President	May 8, 2014
USC System Academic Affairs & Faculty Liaison Committee	June 13, 2014
USC System Board of Trustees	June 20, 2014

CHE Staff Concern #4
Page 2, Section 5. Justification. The majority of the discussion focuses on the teacher certification track.
a. Much more discussion and data is needed for the mathematical sciences concentration. Employment data for graduates in the mathematical sciences concentration is needed. The justification section for the mathematics concentration is weak.
b. P.3 - CERRA data needs to focus on secondary mathematics. The data provided in the narrative was about education, in general, in the state. Staff would also recommend getting data from the local school districts about the need for mathematics teachers.
Institutional Response:
a) Mathematics constitutes one of the oldest and most fundamental sciences and forms a core component of a liberal arts curriculum. As the backbone of science in general, mathematics study provides opportunities for students to make powerful impacts in business, finance, manufacturing, communications, engineering and the sciences. Mathematics majors in the Mathematical Sciences track will use the theory of mathematics together with computational techniques and algorithms to solve economic, scientific, engineering, physics, and business problems utilizing computer technology. It should be pointed out that undergraduate mathematics graduates do not typically gain employment as "mathematicians". Instead, they frequently hold positions titled "analyst" or "analytics manager" or a variety of other such nomenclatures. Indeed, it is the problem-solving and critical thinking skills that make mathematics majors highly marketable to employers. Information compiled by Duke University at http://www.math.duke.edu/major/whyMajor.html indicates that mathematics majors rank #1 on the GMAT and LSAT exams (approximately 13% above the mean) as compared to all other majors, have starting salaries 37% above the mean (ranking #1 as compared to all other majors) and rank #1 in total job satisfaction. Besides graduate opportunities in education, mathematics majors are sought for a variety of skilled positions in business, finance, insurance, and other sectors.

Perhaps one of the most substantial and lucrative fields of employment for mathematically-skilled graduates is in a field barely recognized a few years ago: *Big Data*. It is clear that "data scientists" are in exceptional demand with multiple job offers and virtually 100% placement. Mathematics majors are being sought to fill openings in these fields because of their skill sets in pattern recognition and inference. With advanced degrees required for premier positions, an undergraduate mathematics major has much potential to offer. Further, as reported by Forbes, the "Bureau of Labor Statistics projects that job opportunities for mathematicians will grow 23% between 2012 and 2022 and it pegs the median 2012 mathematician's salary at $110,000. Those statistics land mathematicians at the top of career advice and job listing website CareerCast's 2014 list of the 10 best jobs in the U.S." (http://www.forbes.com/sites/susanadams/2014/04/15/the-best-jobs-for-2014/). While a graduate degree may be necessary for some "mathematician" jobs, the most common route, by far, to earning such a degree is through an undergraduate degree in mathematics.

Locally, in the Lowcountry of South Carolina, healthcare, engineering, and transportation & logistics all have need for mathematically-skilled employees. Specifically, USCB has made connections with Gulfstream Aerospace, a General Dynamics company which manufactures the world's premier business jets. USCB students have attained internships and several computational science graduates have received job offers (with at least one current full-time

employee). From on-campus discussions with Gulfstream executives, the demand for capable STEM graduates is more than the area can provide. With recent announcements of a new family of jets and the increased manufacturing processes involving the building of the jet aircraft wings on site, Gulfstream's impact on the area is well-forged into the future.

Regarding healthcare, the need for mathematically-skilled graduates in areas from bioinformatics to data analytics is vast. CareCore National, which has a local healthcare management company office in Bluffton, SC currently lists at least five, full-time local openings specifying mathematics in the job description. USCB has partnered with the company as part of our Computational Science degree via student internships as well as through an advisory board member. Data science is playing an important role in the healthcare sector and mathematics majors are in demand in this sector for that reason.

Further assessments by the Charleston Metro Chamber of Commerce and separately by University of South Carolina economists project a shortage of 25,000 skilled workers, including STEM disciplines, in the Lowcountry of South Carolina within the next five years. According to Jack Jones, the top executive at Boeing's 787 assembly plant in North Charleston, lawmakers need to put money in the right programs to set up businesses for success in South Carolina. "These [programs] are critical curriculums we need to support STEM," he said, "especially in the rural areas where the pool for new talent could come." "Major industries in the Charleston area, such as Boeing Co., require workers with highly specified skills, and those with STEM backgrounds are critical to success."

As technology continues its advance and cyber-security impacts society in profound manners, mathematicians with training in cryptographic methods as well as metric and biometric techniques will contribute substantially to public and private enterprises. These items point to the clear need for mathematicians for the benefit of society in our local community and in our state as well as on a larger stage.

b) The CERRA data, *A Report on the Fall 2013 Supply and Demand Survey*, indicates that the largest category of newly hired teachers in South Carolina high schools during the 2013-14 school year was in mathematics at 239.5 FTE (Table 2A). Moreover, regarding vacant positions in South Carolina high schools at the start of the 2013-14 year, the same report (Table 4A) shows that mathematics was the largest of all categories in unfilled positions comprising about 20% of all high school vacancies (the *Sciences* category was second with an additional 13% of vacancies). The report also indicates that about 1/3 of teachers hired were new graduates from teacher education programs within the state.

As stated in the proposal, Beaufort County was seeking to fill 22 positions in secondary mathematics for the 2013-14 academic year. Updating data to this year (i.e., 2014-15), Beaufort County reports that 18 secondary mathematics positions were sought to be filled for 2014-15. Fifteen of these have been filled but three remain vacant. Similarly, Jasper County has at least one unfilled position in secondary mathematics at this time.

Further indications that mathematics teacher training is a valid component in USCB's mission in the region is the development of a new high school in Bluffton. Bluffton High School currently houses 1313 students in grades ten, eleven, and twelve. Built recently (2004), capacity is already inadequate for the region's growth. The new high school complex will be located in close proximity to the University and is expected to house 900 students upon completion with full capacity at 1400 and will allow the more-standard configuration of grades 9-12 at each school. A new PreK-8 complex is being built nearby as well due to demand. Both schools are

expected to open in 2015-16 and are indicative of future education needs of the local population.

Members of the mathematics faculty have been engaged with representatives of the various districts over the last few years. All districts have been fully supportive of the mission for USCB to prepare teachers in mathematics. Recently, the new Chief Instructional Services Officer for Beaufort County, Dr. Dereck Rhoads, has enthusiastically helped to further cooperative efforts. Faculty in the department have provided service by speaking to various mathematics classes at multiple high schools in the region during the last six months. Dr. Rhoads has helped arrange on-campus meetings with USCB mathematics faculty and local principals and school administrators. Discussions have centered on cooperative strategies, curriculum alignment, and skill training. Mathematics faculty have also been invited to participate in county-wide school mathematics teacher meetings at several local high schools, which they have done. In general, the department is building a strong relationship with local schools. Besides Beaufort County, Jasper County Schools indicate strong support as well. Please refer to the letter of support from Dr. Vashti Washington, Superintendent of Jasper County Schools, attached.

CHE Staff Concern #5

Page 7-8, Section 5d. Similar programs in the state. There should be two tables for this section: one for mathematical sciences and one for secondary mathematics education programs.

Institutional Response:

According to the South Carolina Department of Education website at http://ed.sc.gov/agency/act/se/ep/edprog.cfm?pgm=23, the following institutions each have an approved educator preparation program in secondary mathematics.

Anderson University	Furman University
Bob Jones University	Lander University
Southern Wesleyan University	Limestone College
Charleston Southern University	Morris College
The Citadel	Newberry College
Claflin University	North Greenville University
Clemson University	Presbyterian College
Coastal Carolina University	South Carolina State University
Coker College	College of Charleston
Columbia College	USC - Aiken
Converse College	USC - Columbia
Erskine College	USC - Upstate
Francis Marion University	Winthrop University
	Wofford College

As noted in the table above, USC Aiken has an approved educator preparation program in secondary mathematics. USC Aiken should also be recognized as having a degree similar to Mathematics (C.I.P. 270101): The institution offers a combined degree in Mathematics & Computer Science with C.I.P. 270301. This was not stated in the proposal as the differing C.I.P. did not initially provide the institution name in search results.

Compared with the list in the proposal (pp.7-8, Section 5d, Table 4), Allen University and Voorhees College are the only institutions in the state offering mathematics degrees that do not also have programs in secondary mathematics education. As mentioned at the outset, there is a reason for this dissimilarity; namely, the symbiosis between curricula typically serves to strengthen each. Indeed, the more technology and informatics rule our lives, the stronger the need for pairing between mathematical sciences and mathematics educator training.

CHE Staff Concern #6
Page 8, Section 5e. Similarities and differences between the proposed program and those currently at other institutions needs to be addressed.
Institutional Response:
The proposed degree in Mathematics with a track in Mathematical Sciences contains courses commonly found in mathematics curricula in successful programs throughout South Carolina and the country. For the track in Mathematical Sciences, students are required to take courses in the areas of calculus and analysis, discrete mathematics, algebra, geometry, and mathematical statistics. Moreover, courses leading to the structure and nature of mathematics are included (e.g., Introduction to Proof) as well as a course regarding the historical development of mathematics and an advanced two-semester sequence course in either Analysis or Abstract Algebra. Students are also required to take a computer programming course as well as at least the first semester of calculus-based physics. Besides the physics and programming requirements, students are required to take 17 mathematics/statistics courses at the level of calculus or above. Upper-level electives include both pure and applied mathematics courses. While most mathematics programs are similar, we believe the curriculum provided in the proposal promotes a very strong, well-rounded approach to the study of mathematics at the undergraduate level. For comparison purposes, please see more information in response to item #9 below.

For the B.S. degree in Mathematics with a track in Secondary Mathematics Certification, the same rigorous Core Major Requirements are included as above. Instead of a second semester 400-level Abstract Algebra course or a second semester 400-level Analysis course as within the Mathematical Sciences track, a course in Mathematical Modeling is required. The rationale behind this substitution is that further work in modeling helps prepare secondary teacher candidates to achieve a stronger background to relate more mathematics to more students in a more-diverse setting. The secondary mathematics certification track also includes education preparatory courses in foundations, psychology, diversity, and classroom management. Teaching with technology as well as mathematics teaching methods (including practicum) are included together with a supervised internship. All South Carolina Department of Education requirements will be met by the program as outlined in the proposal, specifically under items 17a and 17b. As with all other approved educator preparation programs in secondary mathematics in the state, this track will comply with the SPA (National Council of Teachers of Mathematics (NCTM)) standards as well. These items constitute the bulk of the full proposal and are listed under items 17a and 17b respectively, pp. 21-105. Indeed, a national template SPA example from the NCTM regarding an exemplary standards report utilizes work from Winthrop University. Our curriculum proposal is guided by this example in preparation for program approval and future accreditation. Indeed, Winthrop's recognized program is a model for this program proposal.

CHE Staff Concern #7
Page 9. The Praxis I test has been replaced with a new test: Praxis Core Academic Skills for Educators (Core) tests.
Institutional Response:

At the time the proposal was submitted, the *Praxis I* was still offered (until August 1, 2014) and had not been replaced with the new test. Again, once the proposal leaves USCB, we never handle it again. There is no opportunity for an institution to make such a change after the fact.

CHE Staff Concern #8

Page 9-10, Section 7. Enrollment. The estimates appear large compared to other mathematics programs at higher education institutions. What type of data do you have to support the large estimates? Do you have data from other institutions about the numbers of students in the secondary mathematics certification programs?

Institutional Response:

Yes, we evaluated data both internally and externally. As secondary mathematics teacher education candidates take different routes to certification in South Carolina- some within mathematics departments and some within education departments (a practice which continues through the doctoral level) - data separating students by certification track versus general mathematics at an aggregate level is obscured. However, by comparing the C.I.P. code 270101 (Mathematics, General) with either C.I.P. 131311 (Mathematics Teacher Education) or C.I.P. 131205 (Secondary Education and Teaching) depending upon the particular institution, estimates from Fall 2013 obtained at the CHE site http://www.che.sc.gov/DataPublications/SearchtheCHEDocumentCatalog.aspx contain combined mathematics and secondary mathematics certification enrollment for the following institutions as:

Name	Enrollment
Charleston Southern University	65
The Citadel	46
College of Charleston	98
Lander University	64
U. S. C. - Aiken	63
U. S. C. - Upstate	157
Winthrop University	68

Our proposal contains combined enrollment projections of 41 students in year four and 43 students in year five. These projections seem attainable and reasonable based on this external evidence. Moreover, internally, with USCB currently offering only two other STEM degrees (Biology with enrollment at 177 students and Computational Science, in its fifth year, with enrollment at 68 students); the provided projections seem further well-founded.

CHE Staff Concern #9

Page 11. Section 8. Curriculum. The curriculum for the mathematical sciences track needs to be more developed. There are 22-32 elective hours for this track which appears to be a lot based on traditional mathematics programs.

Institutional Response:

We assert that the curriculum for the Mathematical Sciences track is fully developed. The curriculum for the track is, in fact, strong by any reasonable standard. The elective hours (22-32) are not a reflection of a lack of development in program planning. For example, the following table indicates the number of MATH-designated courses required for a degree in mathematics as compared to the same institutions listed above:

Name	MATH courses required (calculus and above)
USCB Program Proposal	**16**
Charleston Southern University	13
The Citadel	14
College of Charleston	15
Lander University	15
U. S. C. – Aiken*	12
U. S. C. - Upstate	13
Winthrop University	16

* USC Aiken offers a combined Mathematics & Computer Science degree with additional requirements in CSCI.

Notes:

- Most or all programs required courses in computer programming or mathematical software as well as statistics. USCB's proposal includes both programming and mathematical statistics courses neither of which is accounted for above. Additionally, a calculus-based physics course is required as well.
- Institution programs were selected as close to the proposed degree as possible (e.g., a B.S. in pure mathematics was chosen whenever possible compared to a B.A. or as compared to an applied mathematics degree). Data was gathered from web-sites, catalogs, or bulletins as available.

While counting courses should not and cannot be the measure of program development, we are confident that anyone familiar with undergraduate college curricula in mathematics would find that the representation of courses in the proposed curriculum offers a well-rounded educational platform for mathematics study at the undergraduate level. Based on this data, the fact that the proposed track in Mathematical Sciences is able to offer students 22-32 elective hours should be applauded. It provides opportunity for students to pursue other interests, to bolster a degree with the addition of a relevant minor, to take prerequisite courses as needed for particular plans of study, or simply to take additional mathematics, statistics, or computer science courses.

CHE Staff Concern #10

Page 13. Section 9. Assessment. The GPA of 2.0 isn't high enough for the secondary mathematics certification track.

Institutional Response: This is an error. A 2.0 is required to be in good academic standing within the university. The GPA should be listed as 2.75 within the program: *Students must maintain a minimum cumulative GPA of 2.75 to be in good standing in the program and meet admission requirements for the Professional Program.* In addition, we note that the 2.75 course GPA listed in several places as required for the Pre-professional track for students in the Secondary Mathematics Certification track is superfluous. A "B" or better, or equivalently, a 3.0 course GPA in all pre-professional courses is required.

CHE Staff Concern #11

Page 15. Section 10. Faculty. Concern about faculty not being in place for a new program, especially since there isn't currently an undergraduate degree in mathematics. Faculty members in mathematics and mathematics education should be in place to develop the program. There are currently 5 faculty members listed who could teach in the proposed

program, but there are 17 proposed new courses. More detail needs to be provided about current faculty and future faculty (qualifications, department assignment, and FTE).

Institutional Response:

The Department of Mathematics and Computational Science currently (Fall 2014) consists of 12 fulltime faculty members, eight of which teach mathematics with an additional tenure-track faculty member (a computational scientist) teaching a course in mathematical statistics. Of those currently teaching mathematics courses, four faculty members have licensed classroom teaching experience in mathematics totaling more than 50 years combined with approximately half in grades 9-12 and the remainder in grades 7-12. Additionally, a search for a tenure-track faculty member with a doctoral degree in Mathematics Education for a position commencing at the program's anticipated start date of fall 2015 has been approved and is progressing. It is planned that this person will contribute to teaching within the program as well as in program development (particularly in years one and two) and administration. Dr. Jane Upshaw, Chancellor of USCB, also has an earned Ph.D. in Mathematics Education and continues to provide program direction as well. Regarding Education faculty, a tenure-track position in Education is proposed and planned with a search commencing in 2015-16 for fall 2016 hire. It should be noted that USCB hired the former Beaufort County School District Secondary Mathematics Coordinator within the Education Department this year as well. While this faculty member currently serves as a Field Placement Coordinator for the Elementary Education program at USCB, her expertise in secondary mathematics and local school policies and procedures is highly valuable. A full-time instructor position in mathematics/education is planned in year four as well, and duties will be assigned appropriately as the first cohort of students approaches program completion. As can be demonstrated in the example 4-year curricula plans for the two tracks below, the Education faculty member(s) will be teaching in the third and fourth years of the program.

Four Year USCB Degree Plan: BS in Mathematics-Secondary Education Cert. Track			
Fall Semester	**Cr hr**	**Spring Semester**	**Cr hr**
First Year			
ENGL 101/101L	3-4	ENGL 102	3
MATH 115	4	MATH 141	4
CSCI 102,104, or 105	3	MATH 174	3
Elective	3	Elective	3
Elective	3	Elective	3
Total	16-17		16
Second Year			
MATH 142	4	MATH 240	4
PHYS 211/211L	4	MATH 242	3
MATH 230	3	EDCI 243	3
Elective	3	STAT 340	3
		Elective	3
Total	14		16
Third Year			
MATH 300	3	EDEX 300	3
MATH 360	3	EDPY 335	3
EDFO 321	3	MATH 390	3

Elective	3	Elective	3
Elective	3	Elective	3
Total	15		15
Fourth Year			
MATH 410 or 450	3	EDME 469	12
MATH 421	3	EDME 476	3
EDME 430	3		
EDME 430P	2		
EDCI 441	3		
Total	14		15

Regarding mathematical sciences, as listed in the proposal, 8b p. 12, all anticipated program courses that may be added within the first five years are presented with course descriptions as required. As can be demonstrated from the table below, nine new program courses in mathematics will be required for a cohort FTE of .28125 in additional mathematics courses. With an annual .75 FTE Mathematics Education faculty member in year one and an additional mathematics/education faculty member in year four (annual .5 FTE math), departmental faculty resources are more than adequate to cover the proposed curriculum. The additional courses listed in the proposal are reasonable anticipations in the first five years to provide program flexibility in 300+ level mathematical science program electives (e.g. Combinatorics vs. Functions of a Complex Variable). Choices made may be dependent on future faculty hires and/or replacements as deemed necessary but are reasonably anticipated for now. Faculty resources for majors' courses as well as other programming electives and requirements are adequately sufficient and, indeed, the overlap in prerequisite and required courses with Computational Science (as well as other disciplines) serves to strengthen and bolster USCB's curricular offerings.

Four Year USCB Degree Plan: BS in Mathematics- Mathematical Sciences Track			
Fall Semester	**Cr hr**	**Spring Semester**	**Cr hr**
First Year			
ENGL 101/101L	3-4	ENGL 102	3
MATH 115	4	MATH 141	4
CSCI 102,104, or 105	3	MATH 174	3
Elective	3	Elective	3
Elective	3	Elective	3
Total	16-17		16
Second Year			
MATH 142	4	MATH 240	4
PHYS 211/211L	4	MATH 242	3
MATH 230	3	STAT 340	3
Elective	3	Elective	3
		Elective	3
Total	14		16

Third Year			
MATH 300	3	MATH 390	3
MATH 360	3	MATH 300+	3
Elective	3	MATH 300+	3
Elective	3	Elective	3
Elective	3	Elective	3
Total	15		15
Fourth Year			
MATH 410	3		3
Math 450	3	MATH 411 or Math 451	3
Math 300+	3	MATH 480 Senior Seminar	3
Elective	3	Elective	3
Elective	3	Elective	3
Total	15	Elective	15
Total Hours			121-122

CHE Staff Concern #12
Page 18, Section 14b. Discussion of submission of the Secondary Mathematics Certification concentration to the SC Department of Education for licensure authority is missing.
Institutional Response:
USCB is fully aware of the submission process. According to SCDE:

"The Certification Authority of new or modified program proposals from public institutions will not be considered by a SCDE peer review team until full program approval is granted by the CHE....Once a new or modified program is fully approved by CHE, public institutions should submit copies of their complete proposal (four hard copies in three-ring binders) to SCDE."

Full SCDE guidelines are located at https://ed.sc.gov/agency/se/Educator-Services/Ed-Prep/documents/educatorguidelines.pdf

CHE Staff Concern #13
Page 19-20, Section 16. Estimated Costs. Estimated costs for accreditation and SPA recognition should be included. In addition, there will be costs associated with clinical experiences with the secondary mathematics certification track.
Institutional Response:
Estimated costs for CAEP/NCTM accreditation are currently $10,000- $12,000. These costs are subject to change as the SCDE requires a program to seek national/state approval once ten (10) candidates have completed the program. We estimate this likely to be in year six following program initiation. Moreover, with the transition to CAEP, and particularly CAEP's Accreditation 2.0 initiative, there is continued discussion about accreditation costs and financing. USCB is fully prepared to follow the guidelines to establish program accreditation during this transition. Procedurally, the department submits budget changes annually as part of USCB's *Institutional Effectiveness - Outcomes Assessment* process in conjunction with the University's five-year strategic plan. These costs will be anticipated during the next five-year strategic planning cycle.

Regarding other reasonably anticipated costs within a five-year time frame, CAEP/ NCTM training costs for program administration are expected. Estimated costs are $5000 depending

on location/delegation size, etc. While several years away and with registration details unavailable from CAEP for spring 2015, reasonable estimates from past CAEP conferences include approximately $500 registration per participant plus food/travel, etc. NCTM CAEP Program Report Compiler Training is done electronically via webinar at a cost of approximately $395 per participant. Supervised practicum/internship costs are expected in year four and beyond. As we expect a small secondary mathematics certification annual cohort (4-6 students) and with clinical faculty to supervise, clinical expenditures per year are estimated at $1000.

As was reported to the full Commission meeting held at USCB on November 6, both the mathematics degree and the secondary mathematics degree are greatly needed in our region. We will be the local pipeline for teacher preparation for our local school districts in mathematics education. This pipeline is greatly needed by not only Beaufort County School District but also Jasper and Hampton County School Districts.

Today, GulfStream, CareCore National and many small technical businesses need mathematically trained graduates. What is even more compelling is that economic development is impeded in our region precisely because USCB does not have both of these degree programs.

The process that USCB has followed is exactly the same as the one we have followed for every degree program proposal we have submitted. For example, hiring faculty after the degree program is approved is the procedure that must be followed for any institution in which 86% of its operating budget comes from tuition and fees. Thus, we must hire new faculty predicated on the new enrollment that will come from having the new degrees.

As for the concern that USCB has no mathematical sciences degrees currently, this observation is completely incorrect. Computational Science is an interdisciplinary degree between mathematics and computer science. This degree is a mathematical sciences degree, and USCB has been more successful in recruiting, retaining and graduating students than required in our original proposal. Having degrees in mathematics and in secondary mathematics education will provide synergies for Computational Sciences and vice versa.

Thank you for the opportunity to respond to your concerns. We desperately need both these degree programs and look forward to having the full approval of the SC CHE.

Sincerely,

Jane T. Upshaw, Ph.D.

cc: Mary Ann Janosik
Trena Houp
John Lane
Rachel Harvey

Program Proposal for New Program

University of South Carolina Beaufort

Title of Program: Bachelor of Science
Major: Mathematics
with tracks in
Mathematical Sciences and Secondary Mathematics Certification

2014

_____

Dr. Harris Pastides, President

_____
Date

Dr. M.J. (Bud) Sanders
Chair, Department of
Mathematics and Computational Science
University of South Carolina Beaufort
One University Blvd.
Bluffton, SC 29909
mjsander@uscb.edu
843-208-8106

2. Classification:

a) *program title:* Bachelor of Science with a major in Mathematics

b) *concentrations, options, and tracks:* Tracks in 1) Mathematical Sciences, 2) Secondary Mathematics Certification

c) *academic unit in which the program resides:* Department of Mathematics and Computational Science

d) *designation, type, and level of degree:* Bachelor of Science, 4-year

e) *proposed date of implementation:* Fall 2015

f) *CIP code:* 27.0101

g) *site:* Historic Beaufort Campus (HB) and Hilton Head Gateway Campus (HHG)

h) *whether program qualifies for supplemental Palmetto Fellows Scholarship & LIFE Scholarship awards:* Yes

i) *delivery mode:* traditional

j) *area of certification (only for programs that prepare teachers and other school professionals):* Secondary Mathematics

3. Institutional Approval

Table 1.

Evaluating Unit	Approval Date
USCB Courses & Curricula	November 16, 2012
USCB Faculty Senate	November 30, 2012
USCB Chancellor	December 4, 2012
USC System President	
USC System Academic Affairs & Faculty Liaison Committee	
USC System Board of Trustees	

4. Purpose

a) a statement of the purpose of the program:

The purpose of the Bachelor of Science with a major in Mathematics is to broadly prepare students for the multidisciplinary field of practice that is concerned with the structure and the application of mathematics. A track for students interested in pursuing secondary-education licensure as well a track for students interested in mathematical sciences is proposed.

b) A discussion of the objectives of the (degree) program:

Program objectives for students closely follow recommendations of the Mathematical Association of America and include:

- Develop mathematical thinking and communication skills
- Develop skill in a variety of technological tools including a programming course
- Provide a broad view of the mathematical sciences
- Require in-depth study of a single advanced area (a year-long sequence in analysis or completion of two closely related algebra courses

- Create a foundation of interdisciplinary study which includes an advanced data-oriented statistics course
- Encourage and nurture majors

Additionally, for majors preparing to be secondary school (9–12) teachers, program objectives include:

- Learn to make appropriate connections between advanced mathematics taught in courses and the secondary mathematics to be taught
- Learn about the history of mathematics and its applications, including recent developments
- Experience many forms of mathematical modeling and a variety of technological tools, including graphing calculators and geometry software.

5. Justification

a. A discussion of the need for the program in the state:

The mission of the University of South Carolina Beaufort (USCB) is to "offer baccalaureate degrees that respond to regional needs, draw upon regional strengths, and prepare graduates to participate successfully in communities here and around the globe." The B.S. in Mathematics with tracks in 1) Mathematics and 2) Secondary Mathematics Certification responds directly to both "regional needs" and the call to "prepare graduates to participate successfully in communities here and around the globe." The National Science Board (a component of the National Science Foundation) in its 2007 document: A National Action Plan for Addressing the Critical Needs of the U.S. Science, Technology, Engineering, and Mathematics [STEM] Education System, addresses "Ensuring an adequate supply of well-prepared and highly effective STEM teachers" as one of two central challenges to the United States in constructing a strong, coordinated STEM education system.

The vision of (USCB's) Department of Mathematics and Computational Science is to establish USCB as the primary resource for secondary mathematics educators and school systems in the Lowcountry districts (Beaufort, Colleton, Hampton I and II, and Jasper counties) as well as to provide a baccalaureate degree in mathematics to students interested in entering the workforce or in post-baccalaureate mathematics education.

Specifically, the unit envisions a department that educates and trains prospective secondary mathematics teachers based on accepted research and developmental practices strengthened by professional preparation experiences in the public schools of the region besides preparing graduates for the opportunities a B.S. in Mathematical Sciences offers.

On a regional level, mathematics, and specifically, mathematics training of future teachers, is critical to the economic development of the Lowcountry of SC. Students in SC, and more particularly in the Lowcountry region of SC deserve the chance to compete nationally in colleges, universities and post-graduate programs within or outside of a STEM discipline as well as to compete for the quality jobs in the US that require mathematical prowess, whether they be in business, manufacturing, healthcare or the like. Without a quality mathematics education, opportunities for these students are diminished in a profound manner.

The state of SC and the nation have documented teacher shortages. Combined with rapid population growth and development in the Lowcountry, and the rural/poor standing of public schools, this shortage is compounded in USCB's service area (Beaufort, Colleton, Hampton I and II, and Jasper counties). School district administrators in the USCB four-county service area have indicated that they will continue to face a teacher shortages in secondary mathematics resulting from impending teacher retirements over the next five to ten years combined with a shrinking pool of education graduates willing to work in some of the poorer, more rural school districts in South Carolina. Attracting well-

qualified teachers into rural areas is a matter of great concern and school officials in the local school districts have gone overseas to recruit teachers to work in these districts due to a lack of a qualified applicant pool.
Currently, USCB offers a degree in Early Childhood Education and began a degree in Elementary Education in fall 2013. The proposed degree in Mathematics with a track in Secondary Mathematics Certification is the initial step in expanding USCB's mission to serve its service area more fully. There are no secondary mathematics education teacher preparation programs in SC within a reasonable commuting distance (defined as the distance a reasonable person would be willing to commute to attend daily classes) from USCB that those residents can attend to earn this degree. Discussions with both Beaufort and Jasper County school district officials over the years have focused on a "grow your own" pool of teachers. This degree will make USCB more attractive for local students wanting to earn a teaching certificate and who have a desire to work in their home base. Both Beaufort and Jasper County School Districts Human Resources' managers have expressed strong support of USCB offering a program in order to meet the local demands for teachers in mathematics.

The conclusion of the Fall 2013 Teacher/Administrator Supply and Demand Survey published by South Carolina's Center for Educator Recruitment, Retention, and Advancement (CERRA) in January 2014 states that year after year, districts have difficulty filling vacant teacher positions in the same subject areas: special education (across all school levels), and mathematics and sciences in both middle and high schools. Over the last three school years, unfilled positions in these three critical need areas have explained anywhere from 34% up to 46% of all statewide teacher vacancies.

Since the January 2014 Supply and Demand report did not include data from the Public Charter School District this year, the number of allocated teacher positions decreased by 754 FTEs from the previous year but the proportions by school level remained the same. One-third of all FTEs filled this year were new graduates from teacher education programs in the state. This statistic is down a marginal amount from 36% last year. Just over 8% of the FTEs filled were new graduates from teacher education programs in another state. Teachers who transferred from one SC district to another made up 27% of the FTEs filled this year. About 15% of the new hires transferred from another state. As mirrored by the number of allocated positions, the majority of newly hired middle and high schools teachers were concentrated in just a few subject areas including English/language arts, mathematics, sciences, and social studies.

More directly to the point, CERRA reports, "64% of all unfilled special education positions are concentrated in two geographic areas in the state: the Lowcountry and the Pee Dee regions. Districts in these two regions also were responsible for more than 55% of statewide vacancies in all subject areas, yet they make up only 36% of all teacher positions in the state."
http://cerra.org/media/documents/2014/1/2013_Supply__Demand_Report2.pdf

CERRA concludes with three main themes that support the need for this program at USCB, "The numbers of vacant positions and newly hired teachers have not changed much in two years... Year after year, districts have difficulty filling vacant teacher positions in the same subject areas: special education (across all school levels), and mathematics and sciences in both middle and high schools...Vacant teacher positions also are being consistently reported at a disproportionate rate, regardless of subject or certification, by districts in two geographic areas known as the Pee Dee and Lowcountry regions of SC.

According to the National Center for Education Statistics (NCES) 2011-2017 (March 2011) report entitled "Projections of Education Statistics to 2019", "Between fall 2007, the last year of actual public school data, and fall 2019, the number of teachers in elementary and secondary schools is projected to rise. The pupil/teacher ratios are projected to decrease in both public and private schools. The annual number of new teacher hires is projected to increase in both public and private schools. Total public and private elementary and secondary school enrollment reached 55 million in fall 2007, representing

a 10 percent increase since fall 1994. Between fall 2007 and fall 2019, a further increase of six percent is expected, with increases projected in both public schools and in private schools. Increases in public school enrollment are expected for Hispanics, Asians/Pacific Islanders, and American Indians/Alaska Natives, and decreases are expected for Whites and Blacks. Increases in public school enrollment are expected in the South and West, and decreases are expected in the Northeast and the Midwest. A historic turnover in the teaching profession is on the way. More than a million veteran teachers are nearing retirement. America will need two million new teachers in the next decade, and experts predict that half the teachers who will be in public school classrooms ten years from now have not yet been hired."

On a local level, the Beaufort County School hired 18 secondary math teachers in 2010-11 for the following academic year, 20 in 2011-12, and will hire at least 22 secondary math teachers in 2012-13 for the 2013-14 year (13 hired as of June, 24, 2013 with 9 remaining vacancies and more positions likely needed (personal email: Becky Randazzo, Beaufort County School District Recruiting Coordinator, Rebecca.Randazzo@beaufort.k12.sc.us.)

Moreover, 21 schools in Beaufort County, all five schools in Jasper County, eight schools in Colleton County, and ten schools in Hampton I&II are considered critical geographic schools for the 2013-2014 school year. Compelling regional factors that contribute to this need include the following: (1) Colleton, Jasper and Hampton counties are three of the poorest counties in the state and poverty rates throughout the region are disproportionately high. These are the hardest hit areas for teacher shortages; in particular, this area of the state has been referred to as the *Corridor of Shame*. (2) Beaufort County is the fastest growing county in the state, with a burgeoning population increase of nearly 40% from 1990 (pop. 86,425) to 2000 (pop. 120,937), and another 39.5% from 2000 to 2010. Additionally, Jasper County's population increased by 33.5% (15,137 to 20,678) during this decade—both counties more than doubling the state rate of 15.1%. Projections show a slower, but continual growth pattern for the region. In Beaufort County alone, the most conservative projections anticipate the population increasing by a minimum of another 40% over the next 25 years. Sources from labor market indicators reflect varying growth projections, though all show a steady increase as indicated in the following chart.

Table 2. Part a.

Beaufort County Population Growth and Projections						
Source	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**
1. LMI	120,937	137,800 (13.9% over 2000)	Actual 162,233	170,640	185,290	199,780

Cited Sources: Lowcountry Economic Network, U.S. Department of Commerce, Bureau of Census, and S.C. Office of Research and Statistical Services.
http://quickfacts.census.gov/qfd/states/45/45013.html ;
http://www.sccommunityprofiles.org/census/proj0035.php

(3) Beaufort County School District has experienced a 3.1% increase (616 students) over the past five years, and both Beaufort and Jasper County schools have had aggressive building programs over the past few years. Both districts have reported difficulty in recruiting and retaining teachers; and (4) Contributing to a recurring high turnover rate, 18% of Beaufort County teachers are members of military families, with an average military tour of three years.

Even more significant is the fact that the Bluffton community, often viewed mainly as a retirement community, has experienced significant student growth even at the early childhood and elementary levels. With Okatie Elementary as an established school (spring 2013 enrollment of 615 students), the

Michael C. Riley Early Childhood Center (PreK-1) opened in fall 2009. Along with the M. C. Riley Elementary school, the combined enrollment for spring 2013 was 696. Red Cedar Elementary opened in fall 2009, with a spring 2013 enrollment of 945 students. And, while Bluffton Elementary opened in 1999, the Bluffton Early Childhood Development Center opened in fall 2010, with a combined spring 2013 enrollment of 610 students. Recently, Pritchardville Elementary opened in fall 2010, with a spring 2013 enrollment of 650 students. As students continue the matriculation process, the need for quality local teachers at middle and secondary levels is evident. (web: South Carolina Department of Education Report Cards, school websites.)

The B.S. with a Major in Mathematics is a critical need area based on career opportunities, workforce needs, and advancement of education in the region. Based on data from the Bureau of Labor and Statistics and Projections Central State Occupational Projections websites, the demand for occupations in Middle School Teachers and Secondary Education Teachers is expected to grow nationally by 8.2% from 2012-2022. Within SC, the growth is expected to be 11.4% from 2012-2020. The average number of annual openings in SC for occupations within middle school and secondary school education is 800. Nationally, the average annual number of openings is 59,980.

Table 3. Parts a and b.

Occupational Projection National							
		Employment		Openings			
SOC Code	Occupation	2012	Projected 2022	Change	Growth	Replace	Total
25-2031	Secondary school teachers, except special and career/technical education	955,800	1,008,700	5.5%	52,900	259,700	312,600
25-2022	Middle School Teachers, Except Special and Career/Technical Education	614,400	690,400	12.4%	76,000	211,200	287,200
Total		1,570,200	1,699,100	**8.2%**	128,900	470,900	599,800

Source: U.S. Department of Labor
http://www.bls.gov/data/#projections

Occupational Projections South Carolina				
	Employment			Average Annual Openings
Occupation	Base Est 2012	Projected 2020	Change	Total
Secondary School Teachers, Except Special and Career/Technical Education	12,980	13,940	7.4%	450
Middle School Teachers, Except Special and Career/Technical Education	8,760	10,290	17.6%	350
Total	21,740	24,230	11.4%	800

State projections found at: http://www.projectionscentral.com/Projections/LongTerm

County-wide, Beaufort County's population boomed between 2000 and 2010, increasing 34.1 percent, according to U.S. Census figures released in March 2011. Only three other counties, York, Horry and Dorchester, had populations that grew faster during that period, as reported in the Beaufort Gazette on March 24, 2010 (kpeterson@beaufortgazette.org).

Data from the 2010 census, including population totals broken down by voting age, geography and race, is being released state by state. The U.S. Census Bureau is required by law to report the findings of each decennial census by April 1, so officials can begin redistricting the once-a-decade exercise to redraw their legislative boundaries. Most areas of Beaufort and Jasper counties showed growth during the past decade. Bluffton's population in particular has exploded, increasing by 883 percent. In the two-county area, Beaufort was the only municipality to fall in population. It lost 589 people between 2000 and 2010, a 4.6 percent drop. The number of Hispanic residents has also jumped, to 19,567 increasing by 138 percent in Beaufort County and 3,751, an increase of 215 percent in Jasper County http://abstract.sc.gov/chapter14/pop14.php.

Table 2. Parts b and c.

County Population Change Table (2000-2010)				
County	**Resident Population (April 1, 2000)**	**Resident Population (April 1, 2010)**	**Numeric Change**	**Percent Change**
Beaufort	120,937	162,233	41,296	34.1
Colleton	38,264	38,892	628	1.6
Hampton	21,386	21,090	-296	-1.4
Jasper	20,678	24,777	4,099	19.8
South Carolina	4,012,012	4,625,364	613,352	15.3

Municipal Population Change Table (2000-2010)				
Municipality Service area	**Resident Population (April 1, 2000)**	**Resident Population (April 1, 2010)**	**Numeric Change**	**Percent Change**
Beaufort	12,950	12,361	589	-5
Bluffton	1,275	12,530	11,255	883
Hardeeville	1,793	2,952	1159	65
Hilton Head	33,862	37,099	3237	10
Port Royal	3,950	10,678	6728	170
Ridgeland	2,518	4,036	1518	60
Yemassee	807	1027	220	27

Source: U.S. Census Bureau, Census of Population and Housing 2000 and 2010.
Read more: http://www.islandpacket.com/2011/03/23/1594433/us-census-beaufort-county-grew.html#storylink=misearch#ixzz1Jylv7mNi

The current economy of the Lowcountry is based heavily on agriculture and the hospitality/tourism industry, both of which rely primarily on low paying jobs. In response to these conditions, the Lowcountry Council of Governments (LCOG) has prepared an Economic Diversification Plan, based on expansion in the Lowcountry of five types of industry: Logistics/Distribution (including a planned expansion of the Port of Savannah into neighboring Jasper County), Health Care/Medical, Construction, Wholesale Trade, and Manufacturing. Each of these industries will require employees skilled in the use of mathematics and computational technology, from security and logistical analyses of the port, to the CAD design processes used in architecture and manufacturing, to medical database mining and analyses to financial modeling and forecasting. If USCB students fail to have ample

opportunity to acquire the mathematically requisite skills necessary to compete for technologically intensive positions within these fields, they will be at a considerable disadvantage when competing for high paying jobs even within their own home region.

There is anticipated high demand for the program based on general student interest expressed at new student orientations at USCB. The teaching profession provides steady employment as well as good pay and benefits. According to the Center for Educator Recruitment, Retention, and Advancement (www.cerra.org), in SC, teachers with a bachelor's degree earn on average $38,358 per year and teachers with a master's degree earn on average $48,674 per year. Moreover, as reported in the Wall Street Journal, Forbes, the New York Times, etc., growth and above average pay is expected for workers in STEM disciplines for the foreseeable future.

b. centrality of the program to the USCB Commission-approved mission:

This Bachelor of Science degree with a major in Mathematics directly supports three key areas of USCB's mission:

1. USCB offers baccalaureate degrees that "respond to regional needs, draw upon regional strengths, and prepares graduates to contribute locally, nationally, and internationally with its mission of teaching, research, and service."

- As noted in the previous section, this program responds to regional needs. The region consists of highly differentiated communities on social levels. Its infrastructures pertaining to family, government, schools, the economy, sports, science, art, health and medicine, all warrant a trained and educated populace.
- As the region continues to grow, the need for teachers in multiple disciplines will increase. Teachers in mathematics as well as a capable pool of workers educated in STEM disciplines will be valued highly in the region.

2. USCB "offers degree programs in the arts, humanities, professions, and social and natural sciences"

- The B.S. with a major in mathematics will be a significant component of the technical programs at USCB and will interface with degrees in Biology, Computational Science, and Health Professions as well as contribute to the expanding roles of the Education Department.

3. "The University enriches the quality of life for area residents of all ages through its academic programs, continuing education, artistic and cultural offerings, community outreach, collaborations with regional initiatives, and life-long learning opportunities."

- The university is committed to a learning environment that encourages students to reach their academic and professional potential through exposure to a highly qualified faculty, professional learning environments and a supportive atmosphere in a multicultural setting.

c. A discussion of the relationship of the Proposed Program to Existing Programs at the Proposing Institution

The Mathematics program will be supported by highly qualified USCB faculty in Mathematics and Computer Science as well as by faculty in Education and the Natural Sciences. While USCB is small (with 1724 enrollments and 1457 FTE's in Fall 2013) it is rapidly growing and has increased enrollment substantially in the last 3 years; a growth trend that is expected to continue into the foreseeable future. The newness of USCB with its modern technological classroom environment together with the rapid rise of enrollment indicate that USCB is well-poised to construct a modern high-quality training program in mathematics and for future educators interested in teaching secondary mathematics. It should be noted that close-knit relationships between those teaching in the disciplines of mathematics, statistics, computer science, physics, as well as the biological and chemical sciences will serve to enhance the degree by providing cognate relevancies for students intending to seek secondary mathematics licensure in the state. Courses overlapping with the needs of the Computational Science program at USCB (for example, programming courses) will enhance the cross-disciplinary depth of exposure to mathematical concepts and applications. Besides the USCB Faculty

Senate, the Department Chairs, senior administration, and education service districts all support the development of the program as furthering the mission of USCB in the Lowcountry region of SC.

d. a comprehensive list of similar programs in the state:

Table 4.

Similar Programs in South Carolina	
Institution	**Program similar to a B.S. with a major in Mathematics (C.I.P. 270101)**
Allen University	Mathematics
Anderson University	Mathematics
Benedict College	Mathematics
Bob Jones University	Mathematics
Charleston Southern University	Mathematics
Claflin University	Mathematics
Clemson University	Mathematical Sciences
Coker College	Mathematics
College of Charleston	Mathematics
Columbia College	Mathematics
Converse College	Mathematics
Erskine College	Mathematics
Francis Marion University	Mathematics
Furman University	Mathematics
Lander University	Mathematics
Limestone College	Mathematics
Morris College	Mathematics
Newberry College	Mathematics
North Greenville University	Mathematics
Presbyterian College	Mathematics
South Carolina State Univ	Mathematics
Southern Wesleyan University	Mathematics
The Citadel	Mathematics
U.S.C. Columbia	Mathematics
U.S.C. Upstate	Mathematics
Voorhees College	Mathematics
Winthrop University	Mathematics, General
Wofford College	Mathematics

e) Similarities and differences between USCB's proposed program and those at other institutions in the state, region, and nation:

As a prevalent subject area in P-16 education, although there are a number of baccalaureate level mathematics degree programs in public and private colleges/universities within SC, none are proximate to USCB's four-county service area. Moreover, as a program that specifically addresses the local need for quality mathematics educators, local students represent a significant asset to helping regional districts recruit effective teachers. For students in this region desiring a baccalaureate degree in mathematics, a one-way commute in excess of 90 miles would be necessary from the USCB HHG Campus and 67 miles from the HB Campus to attend a similar program in Charleston, and consequently would eliminate most students interested in the degree. Duplication of programs located in other parts of the state is warranted based on the great need for mathematics teachers and workers in STEM disciplines in the region because of substantial growth and occupational trends.

An undergraduate degree in mathematics is not available through the Academic Common Market to students in SC. Although web-based institutions may offer some courses typically found in a mathematics program, teacher certification programs require observation, practica, and internship/student teaching components that cannot be accomplished through web-based instruction. Moreover, the creation of this additional teacher preparation program in this underserved region of the state of SC is both justified and needed.

6. Admission Criteria

A student who meets the University's general eligibility requirements may apply to the program in Mathematics in the track in Mathematical Sciences; additional requirements for the track in Secondary Mathematics Certification are discussed below. Admission of freshman students is based on high school rank, grades, and entrance examination scores. These factors will be used to determine the applicant's probability of completing the program requirements. Applicants who have earned a 2.0 cumulative GPA on the defined college preparatory units and who score 800 on the SAT or 17 on the ACT may be admitted to the Mathematical Sciences track. Students transferring from other programs or institutions are required to have 2.0 cumulative GPA in all previous college-level course work. In addition, they must be in good standing and eligible to return to the institution last attended. Students already enrolled at USCB may obtain the major declaration form from the Registrar's Office whereby students must select the track within the major. Students must fulfill USCB admissions requirements to enroll in general education or program specific courses. Students in good standing may enroll in upper division Mathematics and/or Education courses when appropriate, relative to meeting general education requirements and pre-requisites.

Application for admission into the Secondary Mathematics Certification track must be submitted to the Mathematics Teacher Education Committee (consisting of at least three tenured/tenure-eligible mathematics faculty members along with an additional tenured/tenure-eligible education faculty member). The student must have completed at least 45 hours of undergraduate credit together with the following conditions (as well as other USCB academic requirements):

- A cumulative Grade Point Average (GPA) of at least 2.75 in all undergraduate course work
- Completion of all Pre-Professional courses with a minimum GPA of 3.0 and a "C" or better in each course
- Grade of "C" or better in a performance-based speech course- SPCH 140: Public Communication or SPCH 230: Business and Professional Speaking
- Passing scores on all three sections of Praxis I Test. Official scores must be submitted to and received by the Department of Mathematics and Computational Science
- Attendance at the Secondary-Mathematics-Certification Orientation Session
- Criminal Background Check and Full Disclosure Statement from the State Law Enforcement Division (SLED)
- Successfully complete Professional Program Interview and Disposition Statement
- Approval by the Mathematics Teacher Education Committee

Curricula designated as professional education courses are limited to students who have been formally accepted into USCB's Bachelor of Science in Mathematics in the Secondary Mathematics Certification track.

7. Enrollment

a) projected total student enrollment for the first five years.

Table 5

Projected Total Enrollment				
Year	**Fall**		**Spring**	
	Headcount	**Credit Hours**	**Headcount**	**Credit Hours**
2014-15	12*	180	12	180
2015-16	24**	360	24	360
2016-17	36***	540	36	540
2017-18	41****	615	41	615
2018-19	43*****	645	43	645

* 6 new freshmen, 6 internal "transfer" sophomores.

** 8 new freshmen, 10 continuing students, 4 internal "transfers", 2 retained students

*** 8 new freshmen, 22 continuing students, 4 internal "transfer", 2 retained students

**** 8 new freshmen, 27 continuing students, 4 internal "transfers", 2 retained students

***** 8 new freshmen, 29 continuing students, 4 internal "transfers", 2 retained students

Note: estimate of two students lost to attrition annually after spring semester

Assumptions for the table above:

1. the program is a four-year program;
2. six students new to the institution will enroll in the first year and 8 students will enter each year thereafter;
3. 6 students from other programs (including "undeclared") within the institution will enter the program in the first year as sophomores, 4 students will internally "transfer" each subsequent year for the next 4 years; 2 students will be retained by the institution to enter the program each year that would have otherwise transferred;
4. new students will enter the program in the fall semester;
5. there will be some attrition between academic years;
6. students will take 12+ credit hours per semester.

b) how the estimates were made and academic origin of students:

Since there is presently no Mathematics major at USCB, the modest estimates in the above table are based on (1) the need for the mathematics/mathematics education degree statewide and nationally, (2) the increased yearly enrollment at USCB, (3) comparison data to other institutions (CIP 270101) available from the Commission (web: https://info.che.sc.gov/reports/cgi-bin/cognosisapi.dll?b_action=cognosViewer&ui.action=run&ui.object=%2fcontent%2ffolder[%40name%3d%27Reports%27]%2ffolder[%40name%3d%27Enrollment%27]%2freport[%40name%3d%27ENR0027-Headcount+Enrollment+by+Program+Code%2c+Institution+and+Degree+Level%27]&ui.name=ENR0027-Headcount%20Enrollment%20by%20Program%20Code,%20Institution%20and%20Degree%20Level&run.outputFormat=HTML&p_Param_Rep%20Year=2010&run.prompt=false

then select reporting year=2010, institution type=public, and CIP Program=6-Digit CIP Program). It is anticipated that once the degree is implemented, a bulk of the total enrollment projections will be from new enrollments to USCB. Credit hour calculations are based on 15 hours for fall and spring semesters.

In STEM fields, USCB currently offers a Bachelor of Science degree in Biology as well as a Bachelor of Science in Computational Science. Both programs have attracted significant enrollments. In Fall 2011, the Biology program (CIP code 260101) , initiated in 2007, enrolled 173 majors and the Computational Science program (CIP code 303001) whose first cohort will graduate in 2014, enrolled 30 majors (web:

https://info.che.sc.gov/reports/cgi-bin/cognosisapi.dll?b_action=cognosViewer&ui.action=run&ui.object=%2fcontent%2ffolder[%40name%3d%27Reports%27]%2ffolder[%40name%3d%27Enrollment%27]%2freport[%40name%3d%27ENR0027-Headcount+Enrollment+by+Program+Code%2c+Institution+and+Degree+Level%27]&ui.name=ENR0027-Headcount%20Enrollment%20by%20Program%20Code,%20Institution%20and%20Degree%20Level&run.outputFormat=HTML&p_Param_Rep%20Year=2011&run.prompt=false then select report year 2011, institution type=public, CIP program=2-Deigit CIP Program). Students in the local 4-county region of the state wishing to major in other STEM fields in SC are limited without relocating to other areas of the state. If a degree in Mathematics were to be made available from USCB, the university would be able to train students that desire to provide secondary mathematics education to students in the Lowcountry of SC as well as those whom seek mathematically intensive careers or further education within SC or in the national arena.

b) number of new students and transfers from other degree programs:
The footnotes in Table 5 describe how the projections were made. USCB currently has a substantial pool of "undeclared" students. The modest projections above include only attracting four of these students each year.

8. Curriculum
A "C" or better is required in all courses in Sections II and III below (excluding General Education (GE) electives as allowed by the GE curriculum) (Courses numbered 300 and below comprised in Sections II and III constitute the Pre-professional courses for students in the Secondary Mathematics Certification track).

Table 6.

I. USCB General Education Requirements (Secondary Mathematics Certification track requires COMM 140: Public Communication or COMM 230: Business and Professional Speaking)		27-37
II. Program Requirements		10
STAT B340	Introduction to Probability and Statistics	3
CSCI B102, B104, or B145	(Programming and Algorithmic Design)	3
PHYS B211, B211L	Essentials of Physics I with Laboratory	4
III. Core Major Requirements ("C" or better required)		33
MATH B141, B142, B240	Calculus I, II, III	12
MATH B174	Discrete Mathematics	3
MATH B230	Linear Algebra	3
MATH B242	Differential Equations	3

*MATH B300	Introduction to Proof	3
*MATH B360	History of Mathematics	3
*MATH B390	Modern Geometry	3
*MATH B410	Abstract Algebra I	3
III A. Major Requirements - Mathematical Sciences Track		18
*MATH B450	Analysis I	3
*MATH B411 or MATH B451	Abstract Algebra II or Analysis II	3
*MATH B480	Senior Seminar	3
*Nine additional MATH hours at 300+ level		9
Electives		22-32
Total Hours Required		120
III B. Major Requirements – Secondary Mathematics Certification Track		44
MATH B419	Mathematical Modeling	3
*MATH B421	Mathematics for Secondary Teachers	3
EDFO B321	Foundations of American Education	3
EDPY B335	Introduction to Educational Psychology	3
EDEX B300	Introduction to Exceptional Learner	3
EDCI B210	Observation and Analysis	3
EDCI B243	Technology Resources for Teaching	3
EDCI B441	Organization and Management in the Diverse Classroom	3
*EDME B430	Teaching Mathematics in the Secondary School	3
*EDME B430P	Practicum in Teaching Mathematics in Secondary School	2
*EDME B476	Senior Seminar in Secondary Mathematics Education	3
*EDME B469	Internship in Secondary Mathematics Education	12
Electives		0-6
Total Hours Required		120

**Hours for General Education are reduced appropriately by degree program requirements*

b. List of all new (program) courses to be added within 5 years (anticipated)

MATH B300: Introduction to Proof- (3) (Prereq: MATH B240 or consent) Introduction to proof techniques (including quantifiers and induction) with emphasis on developing abilities in construction of and writing proofs; elementary logic, set theory, functions and relations, and selected topics in major areas of mathematics.

MATH B330: Combinatorics- (3) (prereq: MATH B300) Counting principles and techniques, permutations, combinations, derangements, pigeonhole principle, partitions, generating functions, recurrence relations.

MATH B350: Intermediate Analysis- (3) (Prereq: MATH B300) Properties of the real numbers, continuous functions, differentiable functions, infinite series, and the topology of the real numbers.

MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics.

MATH B370: Number Theory- (3) (Prereq: MATH B300) An introductory course in number theory. Divisibility, prime numbers, congruencies, linear and nonlinear Diophantine equations, quadratic residues, number-theoretic functions.

MATH B380: Functions of a Complex Variable- (3) (Prereq: MATH B300) Complex numbers, elementary functions and transformations, differentiation, analytic functions, integration Theory, series, residue theory, conformal mapping and applications.

MATH B390: Modern Geometry- (3) (Prereq: MATH B300) An axiomatic approach to the fundamental ideas of Euclidean and non-Euclidean geometries.

MATH B410: Abstract Algebra I- (3) (Prereq: MATH B300) An introduction to the theory of groups, rings and fields. Topics include normal subgroups, quotient groups, homomorphisms, Cayley's theorem, permutation groups, ideals, the field of quotients of an integral domain, and polynomial rings.

MATH B411: Abstract Algebra II- (3) (Prereq: MATH B410) A continuation of MATH B410 including additional topics in group theory and ring theory, extension fields, straight-edge and compass constructions, Galois Theory, and solvability by radicals.

MATH B421: Mathematics for Secondary Teachers- (3) (Prereq: Acceptance into Mathematics-Teaching Certificate track, and, Senior Standing or consent) Survey of properties and algebra of real numbers and complex numbers; properties and representations of polynomial, rational, exponential, logarithmic, trigonometric functions; concepts of calculus including limits, derivatives, integrals. Euclidean and non-Euclidean geometries, including analytic geometry; concepts and applications of probability and data analysis; concepts and applications of discrete mathematics, including number theory.

MATH B450: Analysis I- (3) (Prereq: MATH B300) A rigorous treatment of topics in the theory of functions of a real variable. Topics include properties of the real numbers, convergence, sequences and series, continuity, uniform continuity, sequences of functions, differentiation, and the Riemann integral.

MATH B451: Analysis II- (3) (Prereq: MATH B450) A continuation of MATH B450; further development of the theory of real functions, including functions of several variables, metric spaces, function spaces, Riemann-Stieltjes integrals.

MATH B480: Senior Seminar- (3) (Prereq: Consent of Instructor) Oral presentations on topics in mathematics, including current mathematics literature. EDME B430: Teaching Mathematics in the Secondary School

EDME B430: Teaching Mathematics in the Secondary School-(3) (Prereq: consent of department chair; Coreq: EDME B430P) This methods course includes the basic content of the academic area of mathematics to be presented in secondary education. Developmentally appropriate experiences, learning activities, materials and equipment to aid in the development of mathematical concepts are presented. Diversity-related influences and needs of exceptional learners are also addressed.

EDME B430P: Practicum in Teaching Mathematics in the Secondary School- (2) (Coreq: EDME B430) Supervised clinical experience in a secondary mathematics setting. Observation and

participation in a classroom setting is required with a focus on mathematical learning experiences, materials and equipment. Seminar and group discussions are included.

EDME B469: Internship in Secondary Mathematics Education- (12) (Prereq: Consent) A program of observation and teaching secondary mathematics in the public schools under the supervision of university and public school personnel.

EDME B476: Senior Seminar in Secondary Mathematics Education- (3) (Prereq: Consent) The synthesis and critical evaluation of professional studies in secondary mathematics education.

9. Assessment

a) the assessments of student learning outcomes that will be used:

Student achievement in the Mathematics program will be measured in a number of ways using both direct and indirect assessment methods. These methods will be used to measure achievement of student learning outcomes. Many of the same assessment tools in other science disciplines at USCB will be used in the proposed Mathematics program. Measurable assessments may include:

1. Direct assessment methods of how well students have met learning outcomes will be performed primarily through the review of assessment tools from individual courses. Course assessment tools include graded homework, quizzes, exams, final exams, project evaluations, portfolio reviews, research/expository papers, and simulations.

- Students in the program must maintain a GPA of 2.0 or higher to remain in good academic standing.
- Semester and annual reviews of students' academic progress, which include course theory, assignments, and projects.

2. Indirect assessment methods, which include focus groups, exit and other interviews, graduation rates, transfer rates, written surveys and questionnaires to include student perception, alumni perception, internship perception, employer perceptions, the Rising Junior Survey, graduating student survey and alumni surveys will be used to assess student learning outcomes.

- Student satisfaction with the program will be surveyed every semester.
- Upon graduation from USCB, students will be tracked in terms of the rate of acceptance to related graduate programs, the successfulness in obtaining (or enhancing) employment, and the number of students pursuing and succeeding, as well as success rates on the Praxis II Mathematics: Content Knowledge for those in the Secondary Mathematics Certification track. Much more information regarding assessment for students in the Secondary Mathematics Certification track is included under item 17 of this proposal.

b) the plan for programmatic assessment and program learning outcomes:

The Department and University acknowledges that program evaluation is an important aspect of their ability to communicate to various constituencies that academic programs are strong, relevant to the mission, continuously improving, and performing at a level worthy of institutional, state and regional support. In 2003, the University implemented an Institutional Effectiveness & Strategic Planning Framework (IESPF) that includes a series of activities and a timeline to ensure a continuous planning process and a feedback loop in regard to the desired outcomes of its educational programs and its academic and educational support services.

All academic programs are reviewed internally using USCB's annual Institutional Effectiveness and Outcomes Assessment (IE-OA) process where program objectives and student learning outcomes are assessed and results used for program improvement. All academic programs draft annual IE-OA Plans and Close-out Reports that are used to articulate their purposes, goals, student learning outcomes, program objectives and action plans with budget implications for the coming year. Close-out reports are due at the end of each academic year and include findings based on assessment activities. The

reports are reviewed by the Institutional Effectiveness Council and a final report is sent to the Chancellor, Administrative Council, and Budget Committee for review.

In addition, USCB faculty developed an Academic Program Review process with guidelines and a timeline for university-wide internal assessment of programs. The Academic Program Review Committee (APRC) reviews and analyzes each academic program's Program Review Report (self-study). The APRC meets with the Department Chair to discuss the report. Final comments are submitted by the Chair of the APRC to the Department Chair and the Chair of the Institutional Effectiveness Council (IE). The IE Council reviews all final reports. The Chair of the IE Council submits a summary with recommendations and concerns to the Department Chair and the Chancellor. Recently, the USC Board of Trustees developed a program review plan that will commence in May 2014. Lastly, students are afforded the opportunity to evaluate the course and course instructor both qualitatively and quantitatively each semester. Faculty and their Department Chair are given access to collated data in order to assess the strengths and weaknesses of the course both in terms of course content and teaching approach. Department Chairs are also tasked with evaluating faculty in the classroom in order to determine whether the instructor's approach is apt to meet the courses learning objectives as specifically stated in the syllabi. After the in-class evaluation, the Department Chair meets with the instructor to offer feedback and discuss continuous improvement strategies.

Commencing with the first class of graduates from the B.S. in Mathematics degree program, the Department of Mathematics and Computational Science in collaboration with the Director of Career Services will develop, administer, and evaluate surveys to gauge graduate employment rates, student satisfaction, successful admission to graduate school, and employer satisfaction. Feedback from the surveys will be used to make program improvements. Lastly, an external advisory board will be developed to provide guidance in program development and improvement, to include ways to enhance USCB's service to public, private, and non-profit sectors and impart a competitive advantage to the state of SC.
Note that accreditation from the Council for the Accreditation of Educator Preparation (CAEP), formerly NCATE, will be sought for the Secondary Mathematics Certification track. Detailed information on key outcomes/assessments is provided in section 17. b. IV. *SPA or Other National Specialized and/or Professional Association Standards* of this proposal. These outcomes/assessments are aligned with the appropriate Specialized Accreditation Agency (National Council of Teachers of Mathematics (NCTM).

c) how program evaluation and student performance assessment data will be used to initiate changes to the program:
In the proposed program, student progress and performance will be monitored on a continuing basis by departmental faculty. USCB will routinely review feedback from the previously mentioned assessments and revise policies, curriculum and recruitment and retention efforts accordingly. The program will be reviewed using USCB's annual IE-OA process where program objectives and student learning outcomes are assessed annually and results used for program improvement.

10. Faculty
a) Faculty List Table

Table 7.

Faculty			
Faculty	**Highest Degree**	**Field of Study**	**Teaching in Field**
Associate Professor 1	Ph.D.	Mathematics	Yes
Associate Professor 2	Ph.D.	Mathematics	Yes
Assistant Professor 3	Ph.D.	Mathematics	Yes
Assistant Professor 4	Ph.D.	Mathematics	Yes

Assistant/Associate Professor 5	Ph.D./Ed.D.	Mathematics Education	TBA
Assistant/Associate Professor 6	Ph.D./Ed.D.	Sec Ed Mathematics Education	TBA
Instructor 1	M.A.	Mathematics	Yes
Instructor 2	M.S.	Mathematics	Yes
Instructor 3	TBA	Mathematics/Mathematics Education	TBA

a) qualifications of new faculty and staff:

There will be three new faculty hires for the program. Assistant/Associate Professor 5 will be hired in 2014-2015, Assistant/Associate Professor 6 will be hired 2015-2016, and Instructor 3 will be hired in 2016-2017. As the program grows, adjunct and full-time faculty will be added. Some program requirement courses and elective options are not reflected in Table 7 and will be taught by qualified, existing full-time faculty in other disciplines (e.g. Physics and Speech). All new adjunct and instructor hires will have, at a minimum, a Master's degree in mathematics or a closely related field. Tenure-track faculty will be terminally degreed.

b) changes in assignment for currently-employed faculty and administrators:

A Program Coordinator, reporting to the Chair of the Department of Mathematics and Computational Science, will be appointed to manage the day-to-day operations of the degree program and serve as a liaison with the Department of Education. The Program Coordinator will serve in a ¼ administration and ¾ teaching role.

b) the plan for faculty development:

The current faculty development plan is outlined in the USCB Faculty Manual. Professional development funds are available for faculty members each academic year, budget permitting. There is also a pool of competitive professional development funds available. Assignments such as teaching loads and other university service requirements for faculty will be allocated as necessary to ensure that the Program Coordinator has sufficient time for curriculum development, assessment, and scholarship.

e) the institutional definition of full-time equivalent (FTE):

Full-time faculty members in mathematics are defined as those teaching at **least 12 hours during** fall semester and, additionally, 12 hours during spring semester subject to reductions for administrative or other purposes. To determine full-time equivalents, the total number of course hours taught each semester is divided by 12 hours for the fall semester and 12 hours for spring semester, resulting in FTEs for each of these semesters. For an annual FTE, the total course hours for fall and spring semesters are added together and then divided by 24.

f) unit administration, faculty, and staff support:

Table 8 – Unit Administration, Faculty & Staff Support

Unit Administration, Faculty, and Staff Support						
Year	**New**		**Existing**		**Total**	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2014 - 15	1	.25	0	0	1	.25
2015 - 16	0	0	1	.25	1	.25
2016 - 17	0	0	1	.25	1	.25
2017 - 18	0	0	1	.25	1	.25
2018 - 19	0	0	1	.25	1	.25
Faculty						
2014 - 15	1	.5	7	5.25	8	5.75
2015 - 16	1	.75	8	5.75	9	6.5
2016 - 17	1	.75	9	6.5	9	7.25
2017 - 18	0	0	10	7.25	10	7.25
2018 - 19	0	0	10	7.25	10	7.25
Staff						
2014 - 15	0	0	1	.16	1	.16
2015 - 16	0	0	1	.16	1	.16
2016 - 17	0	0	1	.16	1	.16
2017 - 18	0	0	1	.16	1	.16
2018 - 19	0	0	1	.16	1	.16
TOTAL	3	2.25	11	7.66	11	7.66

11. Physical Plant

a) physical plant adequacy for the first five years:

The physical plant will be adequate for the proposed program for at least the first five years. USCB presently has two campus sites, the HB Campus and the HHG Campus. Each campus has fully equipped smart classrooms and computer and science laboratories.

b) additional physical plant requirements:

Current infrastructure is adequate for the proposed program. No additional physical plant requirements or modifications to existing facilities are expected for program implementation.

12. Equipment

a) major equipment items which will be needed for the first five years

While technological resources such as Interactive White Boards available to the Early Childhood and Elementary Education programs will suffice initially for bringing the program online, it is expected that additional such technologies will be warranted by the time the first cohort of students in Secondary Mathematics Certification graduates. No other major equipment expenditures are anticipated for the proposed program.

13. Library Resources

a) A qualitative and quantitative (i.e., number of monographs, number of serials, etc.) assessment of current holdings in view of the new program being proposed:

Quantitatively, USCB's students have access to a rich array of resources, including 91,000+ books on campus, plus 200,000+ E-books, subscriptions to over 100 databases and the availability of 200,000+ online journals in all discipline areas. In the subject area of Mathematics specifically, USCB has over 4,600 monograph titles available relating to the proposed degree tracks, Mathematical Sciences and Secondary Mathematics Certification. Also through comprehensive interlibrary loan services and delivery systems through regional consortia, USCB students have access to rich resources available nationwide. In SC alone, by being a member of PASCAL, students and faculty have access to over 9 million books and other academic materials. USCB also is a member of KUDZU, a group of 17 southeastern university research libraries that shares resources among its members.

Qualitatively, the USCB Library subscribes to "Bowker's Book Analysis System, an online quality assessment tool that allows USCB to compare its library collection to *Resources for College Libraries* (RCL), the premier core list for academic libraries. Two subject specific analyses were performed comparing RCL's recommended core titles to the USCB library collection (2013). The first was a comparison using the subject term "Mathematics" from the RCL classification system. The results indicate that USCB owns 13.6% of the recommended titles in this subject area. The second comparison was performed using the Library of Congress classification system which is more inclusive in nature in regard to the subject term "Mathematics," and therefore resulted in more titles overall with percentages remaining the same. Data for both analyses are included in the chart below.

Table 9.

USCB Collection Analysis – Mathematics				
Classification/Term	**Owned and in RCL**	**Percent Owned**	**In RCL, Not Owned**	**Total**
RCL - Mathematics	105	13.6%	668	773
LC – Mathematics (QA1 – QA)	134	13.6%	856	990

An even more detailed title breakdown of the collection analysis has been made available to the faculty. This will allow the university to select for purchase those books that will directly support the proposed program. Acquiring more of the recommended titles will insure that the base collection can adequately support the academic aspirations of our students. In addition to the monograph collection, the USCB Library provides access to all four basic Mathematics research journals recommended specifically for academic libraries by Magazines for Libraries, 21th ed. (2013), as well as, full or partial[i] access to 27 of the 37 general Mathematics journals recommended for libraries. The USCB Library also provides access to MathSciNet, the sole basic abstract/indexing service recommended for Mathematics.

b) A quantitative estimate of independent acquisitions needed annually for at least the first three years for associate degree programs and for the first five years for all other degree programs and the estimated additional cost of these acquisitions:

USCB's annual "library materials budget" is slightly over $200,000. Each degree program at USCB has an annual base budget of $8,000. With a per-book cost approximating $61, the university will be able to add around 131 books per annum to support the Mathematics program.

c) A description of how the statewide higher education electronic library (PASCAL) impacts the proposed program (include both PASCAL's universal borrowing and electronic databases). PASCAL should be included as part of the library's resource base when making calculations of need for library resources for a new program and should be noted in the proposal narrative. Although PASCAL brings substantial resources to bear, it does not obviate the need or desirability of additional library resources for a new program.

The USCB Library benefits greatly by PASCAL's aforementioned universal borrowing services and electronic databases, as well as, DISCUS resources available through the State Library. USCB has borrowed hundreds of books through PASCAL's universal borrowing services this year alone. Of particular importance are the highly specialized research monographs essential to faculty research and teaching; this service will undoubtedly be an important source for obtaining specialized materials central to the Mathematics degree. The USCB Library also takes advantage of PASCAL's database package offers that allow for customizing electronic resources according to curricula needs and provides USCB with advantages through central licensing, improved user agreements, and essential pecuniary benefits.

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[1] Access to current content is limited by publisher's moving wall of five years through the JSTOR database, however, Magazines for Libraries highlights the importance of longevity to mathematical papers and published proofs, and states, "Access to mathematical articles even over 100 years old is still vital to current research...Rarely is publication speed a concern among mathematicians, but rather, rigorous review of the work is most important."

14. Accreditation, Approval, Licensure, or Certification

a) a brief description of the accreditation or approval process:

Upon SC CHE approval, USCB will seek accreditation from CAEP using the NCTM (2012-approved) standards. Planning this process will be initiated in 2015-2016 as the program begins its first full academic year. USCB will request CAEP approval after documenting 10 program completers as per NCTM guidelines.

b) licensure or certification process and how the program will ensure that such certification or licensure can reasonably be expected to be achieved:

The proposed Mathematics program with track leading to secondary certification addresses the requirements of the National Council of Teachers of Mathematics (NCTM) standards as well as the South Carolina Department of Education Standards. Please refer to Parts III and IV of this proposal for detailed information.

15. Articulation

This section must describe the institution's efforts to link the proposed program to similar programs offered by other institutions in the state.

a) **NA**
b) **Proposed baccalaureate-level programs should show an entry path for students from two-year institutions, as appropriate.**

USCB has already established the PASSPORT program with the Technical College of the Lowcountry (TCL) to plan for optimal transition of TCL graduates into USCB. Once the Mathematics degree program has been approved by the SC CHE and SACS, USCB will work with TCL and other two-year colleges on articulation agreements to build a path for graduates to gain entrance to USCB.

USCB and USC Salkehatchie established a collaborative program combining the strengths of a regional and four-year campus in the University of South Carolina system and engaging in best practices for increasing student academic success by participation in a learning community. The Sand Shark Scholars Program is an exciting new one-year residential program offered jointly by Beaufort

and Salkehatchie. Students selected to participate in this program will matriculate as a cohort, enrolling in USC Salkehatchie classes on the USCB campus during their freshmen year with the aim of transitioning to sophomore status as a USCB student. Designed for a select group of freshmen, this program provides first-time college students with comprehensive support from both institutions; it offers affordability, access, and the eventual opportunity to enroll at USCB. During this time, they will receive hands-on guidance to help them adjust to college, get involved with campus life and be successful in the classroom. The Sand Shark Scholars Program welcomed its first group of participants in fall 2013.

For ease of transfer, the Statewide Articulation Agreement of 86 courses approved by the SCCHE for transfer from two-to-four-year public institutions is applicable to all public institutions, including two-year institutions and institutions within the same system. This list of courses is available on the SCCHE and SC TRAC websites. Additionally, coursework (i.e., individual courses, transfer blocks, and statewide agreements) covered within this transfer policy will be transferable if the student has completed the coursework with a "C" grade (2.0 on a 4.0 scale) or above.

c) The institution should state if the proposed program leads to a degree that is normally considered to be a terminal degree.

The B.S. in Mathematics with tracks in Mathematical Sciences and Teacher Certification is not considered a terminal degree.

d) Institutions should highlight collaboration with other state institutions. If the collaboration requires an MOU, a signed copy of the MOU must be provided.

USCB has already established the Passport (Appendix A) program with the Technical College of the Lowcountry (TCL) to plan for optimal transition of TCL graduates into USCB. The Sand Shark Scholars Program (Appendix B) is a one-year residential program offered jointly by USCB and USC Salkehatchie. The Sand Shark Scholars Program is an academic transfer program that targets academic advising, student support services and a student life component — all of which are designed to help students succeed in meeting academic requirements for transferring to USCB. USCB has a history of collaboration with other state institutions in numerous areas. USCB intends to work closely with USC Columbia and other institutions to ensure that USCB students are properly advised and prepared for graduate studies in fields related to Mathematical Sciences and Mathematics Education should they choose to do so.

e) inter-institutional collaboration:

See previous response

f) If an institution cannot provide articulation agreements or demonstrate inter-institutional collaboration, an explanation should be provided. Institutions are encouraged to review the State Policy on Transfer, available on the Commission's website and on the South Carolina Transfer and Articulation Center at www.sctrac.org.

USCB abides by the intent and provisions of the State Policy on Transfer, available on the SCCHE and SC TRAC websites.

16. Estimated Costs and Sources of Financing by Year

a) See Table 10

Table 10

Estimated Costs By Year						
CATEGORY	**1st**	**2nd**	**3rd**	**4th**	**5th**	**TOTALS**
Program Administration	19,500	19,500	19,500	19,500	19,500	97,500
Faculty Salaries	59,400	125,400	178,200	178,200	178,200	719,400
Graduate Assistants	NA	NA	NA	NA	NA	NA
Clerical/Support Personnel	6,667	6,667	6,667	6,667	6,667	33,333
Supplies and Materials	2,500	5,000	5,000	5,000	5,000	22,500
Library Resources	4,000	8,000	8,000	8,000	8,000	36,000
Equipment	0	0	0	0	0	0
Facilities	0	0	0	0	0	0
Other (Identify)	0	0	0	0	0	0
Totals	92,067	164,567	217,367	217,367	217,367	908,733
Sources Of Financing By Year						
Tuition Funding	$90,168	$180,336	$270,504	$308,074	$323,102	1,172,184
Program-Specific Fees	1,800	2,100	2,100	2,100	2,100	10,200
State Funding	0	0	0	0	0	0
Reallocation of Existing Funds	0	0	0	0	0	0
Federal Funding	0	0	0	0	0	0
Other Funding (Specify)	0	0	0	0	0	0
Totals	$91,968	$182,436	$272,604	$310,174	$325,202	1,182,384

b) the estimated number of students, both in-state and out-of-state:
Assumes all students are in-state.

c) whether or not any unique cost or state appropriations will be requested:
There are no plans to request "unique cost" or other special state appropriations.

d) how estimated program costs will be financed:
All funds to be generated through tuition and fees.

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17. Programs for Teachers and Other School Professionals

a. South Carolina Department of Education Requirements

Items I and II of the *South Carolina Department of Education New or Modified Program Proposal Guidelines for Educator Preparation Programs for Public and Private Institutions of Higher Education* are addressed by the CHE New Program Proposal items identified in 1-16 above.

III. South Carolina Department of Education Requirements

Description of how and when the new program will meet all state requirements as outlined in the *Policy Guidelines for South Carolina Educator Preparation Units*, (http://www.scteachers.org/educate/edpdf/boardpolicy.pdf) including the following:

A. ADEPT (http://www.scteachers.org/Adept/ihe.cfm)

The Unit's assessment system for initial educator preparation programs effectively incorporates the ADEPT system. The infusion of the ADEPT competencies into the undergraduate program can be viewed in the following table:

ADEPT Performance Dimension	Course Where Addressed	Assignment/Task Addressing the APS
Introduction to ADEPT Evaluation	EDCI B210 Observation and Analysis	ADEPT APS 1-10 Orientation provided by certified ADEPT trainer
APS 1 Long-Range Planning	EDME B469 Internship in Secondary Mathematics Education	APS 1: Long-Range Planning (LRP) Rubric
APS 2 Short-Range Planning	EDCI B243 Technology Resources for Teachers	Smart Notebook Lesson
	EDME B430 Practicum in Teaching Mathematics in the Secondary School	Practicum Midterm and Final Evaluation Rubric (Domain 1)
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation (SRP) Teacher Work Sample (TWS)
APS 3 Planning Assessments and Using Data	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation
APS 4 Establishing and Maintaining High Expectations for Learning	EDCI B243 Technology Resources for Teachers	Smart Notebook Lesson
	EDME B469 Internship in Secondary Mathematics Education	Practicum Midterm and Final Evaluation Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation
APS 5 Using Instructional Strategies to Facilitate Learning	EDCI B210 Observation and Analysis	Observation Notebook
	EDCI B243 Technology Resources for Teachers	Interactive Whiteboard lesson
	EDME B430 Practicum in Teaching Mathematics in the Secondary School	Practicum Midterm and Final Evaluation Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation
APS 6 Providing Content for Learners	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation Teacher Work Sample (TWS)

APS 7 Monitoring and Enhancing Learning	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation Teacher Work Sample (TWS)
APS 8 Maintaining an Environment that Promotes Learning	EDCI B441 Organization and Management in the Diverse Classroom	Classroom Management Plan (CMP) Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation
APS 9 Managing the Classroom	EDCI B441 Organization and Management in the Diverse Classroom	Classroom Management Plan (CMP) Rubric
APS 10 Fulfilling Professional Responsibilities	EDME B430 Practicum in Teaching Mathematics in the Secondary School	Practicum Midterm and Final Evaluation Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation APS 10: Fulfilling Professional Responsibilities Rubric

The Unit is effectively implementing the ADEPT system in field and clinical experiences. ADEPT Standards are integrated in the practica for all initial programs through use of the following assessments:
USCB Formative Observation Form (Practicum)
Secondary Mathematics Education Practicum Midterm/Final Evaluation Report
Secondary Mathematics Education Practicum Midterm/Final Evaluation Report Rubric

ADEPT Standards are integrated into the clinical experience (internship) for all initial programs

through the use of the following assessments:

USCB Formative Observation Form (Internship)
Secondary Mathematics Education Internship Midterm/Final Evaluation Report
Secondary Mathematics Education Internship Midterm/Final Evaluation Report Rubric
Teacher Work Sample (TWS) Description
Teacher Work Sample (TWS) Rubric
ADEPT APS 1: Long Range-Plan Template
ADEPT APS1: Long-Range Plan Rubric
ADEPT APS 10: Fulfilling Professional Responsibilities Form
ADEPT APS 10: Fulfilling Professional Responsibilities Rubric

ADEPT Performance Standards (APSs)

- All required lesson and unit plans submitted to LiveText by teaching candidates and the intern are developed to align with the Common Core State and South Carolina Academic Curriculum Standards.
- The Teacher Work Sample (TWS) submitted to LiveText by the intern is aligned with ADEPT Performance Standards 1-10. The TWS is assessed by the University Supervisor and data is entered into LiveText using the Teacher Work Sample Rubric.

- The USCB Formative Evaluation Form for APS Standards 1-10 is submitted electronically from teachers and supervisors to LiveText. Data will be downloaded to Excel® spreadsheets to more easily aggregate and summarize data. Cooperating Teachers and University Supervisors enter their own USCB Formative Evaluation Form data electronically into LiveText.
- The Secondary Mathematics Practicum Midterm/Final Evaluation Report Rubrics and Secondary Mathematics Internship Midterm/Final Evaluation Report Rubrics align with APS Standards 1-10. Cooperating teachers and University Supervisors work in tandem to evaluate the teacher candidate. The University Supervisor enters data in LiveText using the Secondary Mathematics Practicum and Secondary Mathematics Internship Evaluation Report Rubrics.

Clinical Practice: Formal Assessments and Assistance

- University supervisors will meet with clinical interns a minimum of six times in accordance with state guidelines. The university supervisor's initial visit is required to occur during the first 5 days of the intern placement.
- Formal Observations: University Supervisors will conduct three formal observations of the candidate and the cooperating teacher will conduct three formal observations.
- Self-evaluation and video analysis on ADEPT Key Elements (APS 4-9): In order to prepare candidates who are reflective and assist candidates for formal evaluation in the field with SAFE-T, USCB requires a video analysis and self-evaluation of pedagogical skills for at least one lesson during the clinical experience. This evaluation will be collected using the LiveText Lesson Plan Form in order to electronically manage the data.

Clinical Experiences will include a minimum of the following:
Candidate Orientation

- Review of updated *USCB Department of Education Clinical Internship Handbook* with all required forms, responsibilities, and requirements

Cooperating Teacher Orientation

- Review of updated *USCB Department of Education Clinical Internship Handbook* with all required forms, responsibilities, and requirements

University Supervisor Orientation

- Review of updated *USCB Department of Education Clinical Internship Handbook* with all required forms, responsibilities, and requirements

B. PADEPP (Applicable to Educational Leadership Programs Only) - N/A
(http://www.scteachers.org/leadership/principalperformance.cfm)

C. Education Economic Development Act (EEDA)
(http://www.scteachers.org/educate/edpdf/PerformancebasedStandards.pdf)

Candidates in teacher educator preparation programs have the knowledge, skills, and dispositions to achieve the EEDA performance standards for teacher education programs.
EEDA competencies are assessed across courses in the initial preparation program. The EEDA Unit Assessment for the Undergraduate Teacher Education Program Matrix below shows the coverage of standards and assessments across the program.

EEDA Performance Standard	ACTIVITY/COURSE in Curriculum Where Addressed	ASSESSMENT
Standard 1: Career Guidance	EDME B476 Senior Seminar in Secondary Mathematics Education	Pre-Post Assessment
Standard 2: Career Clusters and Individual Graduation Plan	EDME B476 Senior Seminar in Secondary Mathematics Education	Pre-Post Assessment
Standard 3: Career Guidance Model	EDFO B321 Foundations in American Education	Educational Philosophy Paper/ Presentation
	EDME B476 Senior Seminar in Secondary Mathematics Education	Pre-Post Assessment
Standard 4: Character Education	EDFO B321 Foundations in American Education	Educational Philosophy Paper/ Presentation
	EDCI B441 Organization and Management in the Diverse Classroom	Test rubric
Standard 5: Contextual Teaching	EDCI B210 Observation and Analysis	Teacher Dispositions Rubric
	Professional Program Admission Application	Teacher Dispositions Rubric
	EDME B469 Internship in Secondary Mathematics Education	Teacher Work Sample Rubric
Standard 6: Cooperative Learning	EDME B430 Teaching Mathematics in the Secondary School	Lesson Plan Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation Rubric Teacher Work Sample Rubric
Standard 7: Accommodating Diverse Learning Styles	EDME B430 Teaching Mathematics in the Secondary School	Lesson Plan Rubric
	EDME B469 Internship in Secondary Mathematics Education	Internship Midterm and Final Evaluation Rubric Teacher Work Sample Rubric

The majority of the assignments for EEDA will be new.

D. South Carolina Standards of Conduct
(http://ed.sc.gov/agency/se/Educator-Certification-Recruitment-and Preparation/Certification/documents/standardsofconduct.pdf)

Candidates are informed in writing of the state Standards of Conduct (59-25-160; 59-25-530; 63-17-

1060) required for initial certification. All initial licensure candidates attend a mandatory Education Majors Orientation session on admission to the professional education unit. The South Carolina Code of Conduct is addressed during this session and the Code of Conduct Handout is reviewed with candidates. The Code of Conduct Handout will also be provided to candidates in hardcopy format two times during their program. First, the document is distributed to students in EDCI B210 – Observation and Analysis, the program introductory course. All students must complete a Student Contract Acknowledging Receipt of Code of Conduct. In addition, the Code of Conduct Handout is also given to candidates in EDME B476 – Senior Seminar in Secondary Mathematics Education that accompanies the candidates' internship.

E. South Carolina Safe School Climate Act
(http://www.scteachers.org/Educate/edpdf/climateact.pdf)
Candidates in all initial certification programs have the knowledge, skills and dispositions to identify and prevent bullying, harassment, and intimidation in schools. After classroom instruction on the Safe School Climate Act, all candidates in initial programs will demonstrate knowledge and skills related to this act through completion of various assessments as noted in the table below:

South Carolina Safe School Climate Act	
Activity/Course in Curriculum Where Addressed	**Assessment**
EDPY B335 Introduction to Educational Psychology	Bullying Awareness Quiz
EDCI B441 Organization and Management in the Diverse Classroom.	Bullying Reflection (Blackboard Online Threaded Discussion) Classroom Management Plan Rubric
EDME B430 Teaching Mathematics in the Secondary School	Bullying Reflection Rubric

The majority of the assignments noted above will be new. However, the Bullying Awareness Quiz given in EDPY B335: Introduction to Educational Psychology will remain the same.

F. P-12 Academic Standards

(https://www.ed.sc.gov/agency/standards-and-learning/academic-standards/) *Candidates in all certification programs know, understand, and can apply Common Core State and South Carolina P-12 Academic Curriculum Standards in the area in which they seek certification.* Candidates in all programs align their lessons with the *Common Core State and South Carolina P-12 Academic Curriculum Standards* for their certification area.
The Lesson Plan Template demonstrates this alignment. In addition, all interns are required to include *Common Core State and South Carolina P-12 Academic Curriculum Standards* in their TWS instructional plan and lesson plans. See TWS Dimension 2 Description.

G. Admission Requirements (Assurance of Compliance)
Candidates admitted to initial educator preparation programs demonstrate basic academic proficiencies by meeting the standards set by the State Board of Education on Praxis™ *Core Academic Skills for Educators tests or on the SAT or ACT.* All students seeking to complete the Secondary Mathematics Certification track in the program must meet all admission requirements and be formally admitted before they are allowed to enroll in restricted professional courses.

Students must fulfill USCB admissions requirements to enroll in general education or program specific courses. Applicants who have earned a 2.0 cumulative GPA on the defined preparatory units and who score 800 on the SAT or 17 on the ACT may be admitted to USCB.

Transfer students are required to have a 2.0 cumulative GPA in all previous college-level work. They must also be in good standing and eligible to return to the institution last attended.

There are admission criteria specific to this program. Application for admission into the Secondary Mathematics Certification track must be submitted to the Mathematics Teacher Education Committee (consisting of at least three tenured/tenure-eligible mathematics faculty members along with an additional tenured/tenure-eligible education faculty member). The student must have completed at least 45 hours of undergraduate credit together with the following conditions (as well as other USCB academic requirements):

- A cumulative Grade Point Average (GPA) of at least 2.75 in all undergraduate course work
- Completion of all Pre-Professional courses with a minimum GPA of 3.0 and a "C" or better in each course
- Grade of "C" or better in a performance-based speech course- SPCH 140: Public Communication or SPCH 230: Business and Professional Speaking
- Passing scores on all three sections of *Praxis™ Core Academic Skills for Educators* tests. Official scores must be submitted to and received by the Department of Mathematics and Computational Science.
- Attendance at the Secondary-Mathematics-Certification Orientation Session
- Criminal Background Check and Full Disclosure Statement from the State Law Enforcement Division (SLED)
- Successfully complete Professional Program Interview and Disposition Statement
- Approval by the Mathematics Teacher Education Committee

Curricula designated as professional education courses are limited to students who have been formally accepted into USCB's Bachelor of Science in Mathematics program- Secondary Mathematics Certification track.

NOTE: Faculty advisors meet with candidates at least twice every academic year to assure that candidates are meeting the above requirements.

H. Field and Clinical Experiences Requirements

(http://www.scteachers.org/ADEPT/evalpdf/EducatorPreparationGuidelines.pdf)

Candidates at the initial undergraduate level have completed a minimum of 100 hours of field experiences prior to clinical practice. As the table entitled, *Secondary Mathematics Education Field Experiences and Clinical Practice Requirements* indicates, candidates complete 150 hours of field experiences prior to their internship clinical practice. During the fall semester of their senior year, candidates are enrolled in EDME B430P Practicum in Teaching Mathematics in Secondary School where they complete 120 field experience hours. During the spring semester of their senior year, candidates are enrolled in EDME B469 Internship in Secondary Mathematics Education where they complete 450 hours of clinical practice.
The total number of field experience and clinical hours is 600 contact hours in schools.

Undergraduate Initial Program		
Course	**Description of the Field Experience Of Clinical Practice (Internships)**	**# of hours**
EDCI 210, Clinical Observation and Analysis	Candidates observe for a minimum of 20 hours in a 9-12th grade classroom and complete observation instruments and reflections that address teacher behaviors such as student engagement, classroom management, and questioning techniques. Additionally, candidates examine instructional and assessment practices that reflect guidelines for developmentally appropriate practice. In addition, the candidates complete 12 of the 25 required service learning hours in this class.	20
EDEX 300, Introduction to Exceptional Learner	Candidates observe for a minimum of 10 hours in a 9-12th grade classroom and complete an analysis of the classroom learning environment for students with exceptionalities. The Learning Environment Study (report) focuses on the analysis of information learned from observations, interviews, and content from classes as well as research on issues relevant to the student's disability.	10
EDME 430P, Practicum in Teaching Mathematics in Secondary Education	Candidates are placed in 9-12th grade classrooms in a public school setting one half day a week for 15 weeks for a minimum of 60 hours. In this practicum, candidates plan, teach, and reflect on Mathematics lessons and complete assignments associated with the following discipline area methods course: EDME 430 Teaching Mathematics in the Secondary School Experiences.	120
EDME B469, Internship in Secondary Mathematics Education	Candidates are in the schools five days a week for 15 weeks for a minimum of 450 hours. In this experience, candidates have experience in the full range of responsibilities of the classroom teacher and assume full-time planning and teaching for a minimum of two weeks.	450
Total Hours		600

USCB Department of Mathematics and Computational Science Transition Points, Key Assessments and Requirements

The Department of Mathematics and Computational Science has an established plan in which the current candidates' progress through the unit via a series of progression levels. Some course assessments will change based on the requirements of the Secondary Mathematics SPA , the National Council of Teachers of Mathematics (NCTM).

Candidates' progress is formally monitored at each transition point as described in the Procedures for Monitoring Candidates' Progress in the Professional Education Programs, used in USCB's Department of Education.

The monitoring procedures are the following:
Procedures for Monitoring Candidates' Progress

Initial Undergraduate

Transition Point 1: Admission to the Secondary Mathematics Certification track in Mathematics Program

Initial Undergraduate Level:

1) The undergraduate candidate applies to the USCB Office of Admissions. Upon acceptance, the

Office of the Registrar provides the Department of Mathematics and Computational Science with a list of students identifying themselves as pre-professional majors in Mathematics.

2) Pre-professional majors are assigned an Advisor who facilitates and monitors progression through the program.

3) Pre-professional majors complete general education coursework and pre-professional coursework with a minimum GPA of 2.75, and successfully pass the *Praxis™ Core Academic Skills for Educators* tests.

4) Pre-professional majors submit a Professional Program Application prior to the semester they wish to enter the program.

5) The Advisor verifies the satisfactory completion of all requirements with the applicant, and interviews the applicant, and recommends the candidate to the Department Chair for formal admission into the professional education program as a Mathematics- Secondary Mathematics Certification track major. Disposition essays are reviewed by the Mathematics Teacher Education Committee and evaluated.

6) Letters of Acceptance into the Professional Program are mailed to the candidates. Letters of denial are mailed to those who did not meet the requirements specifying which requirements need to be met.

7) This is noted in the candidate's file so that course holds can be lifted which allows students to take professional level classes.

8) A list of candidate names documents the new cohort.

Transition Point 2: Admission to Internship

1) The candidate submits a Clinical Internship Application and the South Carolina Certification Application to the Field Experiences Coordinator on or before January 15th for fall semester internship and May 1st for spring semester internship.

2) The Coordinator of Field and Clinical Experiences enters undergraduate candidate data on an Excel® spreadsheet and monitors and verifies the completion of all requirements for admission to internship (Transition Point 2) and begins the internship placement process.

3) Candidates must pass the required Praxis II exam prior to internship placement.

4) The Mathematics Teacher Education Committee interviews each applicant and evaluates their readiness and identifies strengths and growth areas.

5) The Coordinator of Field and Clinical Experiences mails a letter of acceptance to the candidate.

6) Course holds are lifted to give permission for the undergraduate candidate to register for the 12-credit internship course and 3-credit Senior Seminar in Secondary Mathematics Education.

7) The Coordinator of Field and Clinical Experiences finalizes the internship placement and candidates are notified of their placements the first week of Senior Seminar.

Transition Point 3: Completion of Internship

1) Candidate's progress during the internship is monitored and assessed by the college university supervisor and cooperating teachers for required coursework completion.

2) The Coordinator of Field and Clinical Experiences verifies the completion of all requirements for the internship by entering the information into the designated Excel® spreadsheet.

Transition Point 4: Program Completion and Recommendation for Certification

1) The candidate submits a Graduation Application the semester prior to graduation. The Advisor reviews the form with the candidate and submits it to the Department Chair for final approval.

2) The Department Chair provides the Office of the Registrar with verification of undergraduate candidates passing the required Praxis II exam.

3) The Office of the Registrar audits the undergraduate candidate's completion of program requirements.

4) The Coordinator of Field and Clinical Experiences submits the names and evidence of the candidates to the Department Chair who recommends the candidates for South Carolina certification.

5) The signed Verification of Program Completion original is mailed to the South Carolina Department of Education Office of Certification and one copy retained in the candidate's file.

I. Eligibility for Certification

Candidates for secondary certification complete at least 30 semester hours in their area of concentration. The Bachelor of Science in Mathematics (Secondary Mathematics Certification Track) program will seek national recognition by the CAEP designated SPA (NCTM, National Council of Teachers of Mathematics). In addition, candidates must successfully complete the following Praxis II and Principle of Learning (PLT) requirements.

PRAXIS II Tests				Principle of Learning (PLT) Test			
Test Name	**CDT Code**	**PDT Code**	**Qualifying Score**	**Test Name**	**CDT Code**	**PDT Code**	**Qualifying Score**
Mathematics: Content Knowledge (On-screen graphing calculator provided)	5161	n/a	160	Principles of Learning and Teaching: Grades 7-12	5624	0624	157

J. Annual Reports (AACTE/CAEP and Title II)
Annual reports (e.g., Diversity Plan, Unit Assessment System, Title II, and AACTE/CAEP) will be completed and submitted at the required deadlines.

K. Commitment to Diversity Assurance
A Diversity Plan based on the plan already in place in the Department of Education at USCB will be utilized. Annual reports will provide evidence of implementation of the Diversity plan to include**:**

- *Candidates possess a strong knowledge of cultural diversity issues that includes global and multicultural perspectives.*

  USCB's General Education program includes a distribution requirement on global and multicultural understanding.
- *Candidates can teach all students, regardless of exceptionalities or backgrounds.*

  The Teacher Work Sample (TWS) is the primary measurement of candidate ability to teach all students, regardless of exceptionalities or backgrounds. See TWS Description and Scoring Rubric.

L. Professional Development Courses (http://www.nsdc.org/standards/index.cfm) - NA

M. Advanced Programs for the Preparation of Teachers Alignment with NBPTS (http://www.nbpts.org/the_standards/standards_by_cert) - NA

N. Experimental or Innovative Programs Policy (Assurance of compliance) - NA

O. ISTE National Educational Technology for Teachers (NETS.T) Standards Alignment
(http://www.iste.org/Content/NavigationMenu/NETS/ForTeachers/2008Standards/NETS_T_Standards_Final.pdf)
The Professional Education Unit initial preparation programs are aligned with the ISTE National Educational Technology Standards. ISTE (NETS.T) Standards are presented in in EDCI B243 Technology Resources for Teaching and are added in all appropriate course syllabi and rubrics throughout the program. To view alignment matrices, see Technology Integration in the Undergraduate Initial Preparation Program.

USCB Technology Integration in the Professional Education Unit
Undergraduate Initial Preparation Programs

ISTE NETS-T	Course Where Addressed	Assignment/Task

Facilitate and Inspire Student Learning and Creativity Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers: **a.** demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations **b.** collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation **c.** communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats **d.** model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning	EDCI B243 Technology Resources for Teaching EDME B430 Teaching Mathematics in the Secondary School EDME B430P Practicum in Teaching Mathematics in Secondary School EDME B476 Senior Seminar in Secondary Mathematics Education	Interactive Whiteboard lesson Thematic Web Lesson Planning Blackboard Discussion Board
Design and Develop Digital-Age Learning Experiences and Assessment Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS·S. Teachers: a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress c. customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching	EDCI B243 Technology Resources for Teaching EDME B430 Teaching Mathematics in the Secondary School EDME B469 Internship in Secondary Mathematics Education	Active Studio Promethean Presentation Mathematics Presentation Lesson Planning Teacher Work Sample (TWS)

Model Digital-Age Work and Learning Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers: a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation c. communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning	EDCI B243 Technology Resources for Teaching EDME B469 Internship in Secondary Mathematics Education	Interactive Whiteboard Lesson Mathematics Presentation Teacher Work Sample (TWS)
Promote and Model Digital Citizenship and Responsibility Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers: a. advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources b. address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources c. promote and model digital etiquette and responsible social interactions related to the use of technology and information d. develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools	EDCI B243 Technology Resources for Teaching EDEX B300 Introduction to the Exceptional Learner EDME B469 Internship in Secondary Mathematics Education	Interactive Whiteboard Lesson Multi-media chapter Presentation (Diverse learners) Teacher Work Sample (TWS)

Engage in Professional Growth and Leadership Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers: a. participate in local and global communities to explore creative applications of technology to improve student learning b. exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others c. evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning d. contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community	EDCI B243 Technology Resources for Teaching EDME B469 Internship in Secondary Mathematics Education EDME B476 Senior Seminar in Secondary Mathematics Education	Interactive Whiteboard Lesson Blackboard Discussions Internship Final Evaluation Video Analysis and Self-Reflection

b. SPA or Other National Specialized and/or Professional Association Standards

IV. National Council of Teachers of Mathematics (NCTM) Standards

The Program Report template for Preparation of Secondary Mathematics Teachers is available from the NCTM only in pdf format. Data collected on the form is presented below.

Program Report for the Preparation of Secondary Mathematics Teachers
National Council of Teachers of Mathematics (NCTM) Option A
NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

COVER SHEET

1. Institution Name

University of South Carolina Beaufort

2. State

South Carolina

3. Date submitted

4/15/2014

4. Report Preparer's Information:

Name of Preparer: Manuel J. (Bud) Sanders

Phone: 843-208-8106

Email: mjsander@uscb.edu

5. NCATE Coordinator's Information:

NA

6. Name of Institution's Program

Secondary Mathematics Certification

7. NCATE Category

Mathematics Education

8. Grade levels for which candidates are being prepared

Secondary, 9-12

9. Program Type

First teaching license

10. Degree or award level

Baccalaureate

11. Is this program offered at more than one site?

No

12. If your answer is "yes" to above question, list the sites at which the program is offered

NA

13. Title of the state license for which candidates are prepared

Mathematics, Secondary Education, 9-12

14. Program report status (Initial Review, Response to One of the Following Decisions: Further Development Required or Recognition with Probation, or Response to National Recognition with Conditions)

Response not applicable for program consideration

15. Is your unit seeking NCATE accreditation for the first time (initial accreditation) or Continuing NCATE accreditation?

Response not applicable for program consideration

16. State Licensure requirement for national recognition: NCATE requires 80% of the program completers who have taken the test to pass the applicable state licensure test for the content field, if the state has a testing requirement. Test information and data must be reported in Section IV. Does your state require such a test?

Yes (Data on completers not applicable for program consideration)

SECTION I- CONTEXT

1. Description of any state or institutional policies that may influence the application of NCTM standards.

The *SOUTH CAROLINA EDUCATOR LICENSURE MANUAL* provides information on requirements for certification to teach in the state. The Regular Program Add-on Certification requirements for secondary mathematics certification as outlined in the MANUAL are:

(1) Bachelor's degree
(2) Initial, or professional certificate at the secondary level
(3) Minimum qualifying score(s) on the content-area examination(s) required by the State Board of Education
(4) Specialized preparation: Semester Hours

- Algebra (abstract, matrix, and linear): 6
- Modern Geometry or Foundations of Geometry: 3
- Calculus: 8
- Three electives from the following subject areas: 9
  - Probability or Statistics
  - Applied or Discrete Mathematics
  - Number Theory
  - Analysis
  - Algebra or Geometry (advanced courses) 35

(5) Endorsement in Advanced Placement Mathematics requires the successful completion of the requisite Advanced Placement Institute.

From the program curriculum as provided in *Part II. 8. Curriculum*, the above requirements are accounted for in this proposal. While field experience requirements from the South Carolina Department of Education as outlined in *Policy Guidelines for South Carolina Educator Preparation Units* are provided below in 2, other standards as required by the South Carolina Department of Education (ADEPT, EEDA, etc.) are accounted for in 17. a. III. *South Carolina Department of Education Requirements* above.

2. The document *Policy Guidelines for South Carolina Educator Preparation Units (September 2006—effective July 1, 2007)* provides requirements regarding field experiences. The relevant undergraduate data is:

B. Field Experiences and Clinical Practice

All teacher preparation programs and other school personnel preparation programs must provide field experiences (also known as the *practicum*) that provide candidates with a variety of progressive experiences in multiple and diverse settings. All candidates must complete a *minimum* of 100 hours of field experiences prior to clinical practice (student teaching) at the initial undergraduate level.

Requirements for the clinical practice experience at the initial level must include the following:

(A) The clinical practice experience must provide for the candidate's intensive and continuous involvement in a public school setting within South Carolina.

(B) In the initial preparation program, the clinical practice teaching experience must be an equivalent of a minimum of twelve weeks or sixty full days; the candidate must teach independently a minimum of ten full days in one placement/setting.

(C) During the sixty days, candidates must adhere to the daily schedule of the cooperating teachers (e.g., bus duty, faculty meetings, parent conferences, extracurricular activities, in-service activities, rehearsals). Assignments of candidates are not to include activities or duties for which a cooperating teacher receives an additional stipend.

(D) Candidates in traditional sixty-day clinical practice experiences may receive monetary compensation for their work if their teacher education programs have been given permission by the Professional Review Committee (PRC).

(E) Each candidate must be supervised by one or more institutional clinical faculty members who have preparation both in the supervision of education and in the teaching major. A single institutional faculty member may fulfill both roles if he or she is appropriately qualified. All institutional clinical faculty supervisors must be trained in the ADEPT system. Appropriate ADEPT training also is required for faculty affiliated with programs that prepare candidates as other professional school (i.e., "special area") personnel.

(F) Each candidate must be supervised by one or more school-based clinical faculty. All school-based clinical faculty must be trained in the ADEPT system. Appropriate ADEPT training also is required for school-based clinical faculty who are affiliated with programs that prepare candidates as other professional school (i.e., "special area") personnel.

(G) Candidates must receive formative evaluations and assistance from both their institutional clinical faculty supervisors and their school-based clinical faculty in terms of the ADEPT performance standards. The formative evaluations must 3 provide the candidate with written and oral feedback and assistance in terms of all ADEPT standards and evaluation processes, and must include a minimum of four classroom observations (i.e., at least two formative observations by the faculty supervisor and two formative observations by the cooperating teacher). Formative evaluations based on the appropriate ADEPT standards and evaluation guidelines also are required for candidates who are preparing to work as other professional school (i.e., "special area") personnel.

(H) Candidates must receive at least one summative evaluation in terms of the ADEPT performance standards. Both the institutional clinical faculty and the school-based clinical faculty must participate in the summative evaluation process. The summative evaluation process must be aligned with the ADEPT formal evaluation guidelines, must include all evaluation procedures (including a minimum of two classroom observations—i.e., at least one summative observation by the faculty supervisor and one summative observation by the cooperating teacher), and must ensure that the candidate receives written and oral feedback in terms of all ADEPT standards. Summative evaluations based on the appropriate ADEPT standards and evaluation guidelines also are required for candidates who are preparing to work as other professional school (i.e., "special area") personnel.

(I) Prior to the candidate's clinical practice, appropriate background checks by the Federal Bureau of Investigation, including fingerprint submissions to the State Department of Education (SCDE), must be completed and cleared.

Moreover, the same document includes the following:

C. Standards of Conduct
All candidates must be provided specific written information regarding the standards of conduct (based on S.C. Code Ann. §§ 59-25-160, 59-25-530, and 20-7-945) required of South Carolina educators for initial certification.

These items are addresses in 17. a) III. *South Carolina Department of Education Requirements* above.

3. Please attach files to describe a program of study that outlines the courses and experiences required for candidates to complete the program. The program of study must include course titles. (This information may be provided as an attachment from the college catalog or as a student advisement sheet.)

Please see information in Part II. *8. Curriculum* above.

4. This system will not permit you to include tables or graphics in text fields. Therefore any tables or charts must be attached as files here. The title of the file should clearly indicate the content of the file. Word documents, pdf files, and other commonly used file formats are acceptable.

5. Candidate Information Directions: Provide three years of data on candidates enrolled in the program and completing the program, beginning with the most recent academic year for which numbers have been tabulated. Report the data separately for the levels/tracks (e.g., baccalaureate, post-baccalaureate, alternate routes, master's, doctorate) being addressed in this report. Data must also be reported separately for programs offered at multiple sites. Update academic years (column 1) as appropriate for your data span. Create additional tables as necessary.

This item is not applicable for program consideration.

6. Faculty Information

Faculty Member Name	Manuel (Bud) Sanders
Highest Degree, Field, & University(3)	Ph.D., Mathematics, Tennessee
Assignment: Indicate the role of the faculty member(4)	Teaching Faculty/Department Chair
Faculty Rank(5)	Associate Professor
Tenured/Tenure Track (Y/N)	Y

Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	Michael J. Evans and Manuel J. Sanders, *Some subclasses of the Real-Valued Honorary Baire Two Functions on R^n*, Rendiconti del Circolo Matematico Palermo (2) 61 (2012), no. 1, 79-90 Manuel J. Sanders, An n-cell in R^(n+1) that is not the attractor of any IFS in R^(n+1), Missouri Journal of Mathematical Sciences, Volume 21 Number 1 (2009), Pages 13–20 Reviewer for Mathematical Reviews
Teaching or other professional experience in P-12 schools(9)	
Faculty Member Name	Swati DebRoy
Highest Degree, Field, & University(3)	PhD in Mathematics (Mathematical Biology), University of Florida
Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Assistant Professor
Tenured/Tenure Track (Y/N)	Tenure Track
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	Swati DebRoy,Zoe Mario, Gonzalo Crespo, Miquel Navasa, Massimo DAmato, Scott J cotler, Xavier Forns, Harel Da- Vol. 58 Suppl 1, 2013, p. S330-S331. Laetitia Canini, Swati DebRoy,Zoe Mario, Gonzalo Crespo, Miquel Navasa, Massimo DAmato, Scott J cotler, Xavier Forns, Harel Dahari ., "Hepatitis C Virus Kinetic Comparison between Non-cirrhotic Patients and Patients Awaiting Liver-transplantation treated with Intravenous Silibinin Monotherapy", Hepatologyl, Vol. 58 Suppl 1, 2013, p.758A. Swati DebRoy, Ben Bolker and Maia Martcheva. "Bistability and Long-Term Cure in a Within-Host of Hepatitis C", J. Biol. Systems, Vol. 19 (4), 2011, p. 533-550.
Teaching or other professional experience in P-12 schools(9)	
Faculty Member Name	Akira Iwasa
Highest Degree, Field, & University(3)	Ph.D. in Mathematics, University of South Carolina

Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Associate Professor
Tenured/Tenure Track (Y/N)	Yes
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	"Preservation of convergence of a sequence to a set" Topology Proceedings, 44 (2014) pp. 97-105. (Co-authored with M. Kada and S. Kamo)
Teaching or other professional experience in P-12 schools(9)	
Faculty Member Name	Heather G. Haskell
Highest Degree, Field, & University(3)	M. Ed., Mathematics Education, Armstrong Atlantic State University
Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Instructor
Tenured/Tenure Track (Y/N)	N
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	
Teaching or other professional experience in P-12 schools(9)	10 years experience teaching all grade levels of mathematics in a public high school.
Faculty Member Name	Timothy Hogenboom
Highest Degree, Field, & University(3)	MA in mathematical sciences, Binghamton University

Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Instructor
Tenured/Tenure Track (Y/N)	N
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	
Teaching or other professional experience in P-12 schools(9)	Permanent certification in mathematics 7-12, New York State. High School Courses Taught: AP Statistics, Distance Learning Elementary Statistics, AP Calculus, Intro to Calculus, Physics, Physics Lab, Math 7, Sequential Math Course 1, Course 2, Course 3, Math A/B, Math B, Honors Algebra 2, Honors Algebra 3/Trigonometry, Functions Statistics and Trigonometry, Intro to Statistics, Trigonometry, Academic Intervention, Computer Programming/Applications. Math Department Head: Advised administration concerning department course offerings, led coordination and writing of math curriculum across grade levels, single-handedly designed and wrote curriculum for several math courses, advised faculty regarding new state standards and assessments through individual and group instruction, compiled statistical analysis to target program strengths and weaknesses, evaluated textbooks, software, and materials for classroom use. Data Analyst: Designed, completed, and wrote data analysis projects, studies, and presentations involving school assessments using Microsoft Office software, SPSS® statistical software, SASI student information systems and the Board of Cooperative Educational Services (BOCES) Data Warehouse database.
Faculty Member Name	Lauren Rotella
Highest Degree, Field, & University(3)	MA Ed., East Carolina University, NC
Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Instructor

Tenured/Tenure Track (Y/N)	N
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	
Teaching or other professional experience in P-12 schools(9)	Clinical supervisor – secondary Math Ed at AASU; 23 years Middle Grades Math/ Science teacher, NC; total of 39 years in education.
Faculty Member Name	Kasia Pawelek
Highest Degree, Field, & University(3)	Ph.D. in Applied Mathematics, Oakland University
Assignment: Indicate the role of the faculty member(4)	Teaching Faculty
Faculty Rank(5)	Assistant Professor
Tenured/Tenure Track (Y/N)	Tenure Track
Scholarship(6), Leadership in Professional Associations, and Service (7):List up to 3 major contributions in the past 3 years(8)	Pawelek KA, Liu S, Pahlevani F, and Rong L, (2012) A model of HIV-1 infection with two time delays: Mathematical analysis and comparison with patient data, Mathematical Biosciences, 235(1): 98-109. PMID: 22108296. Pawelek KA, Huynh GT, Quinlivan M, Cullinane A, Rong L, and Perelson AM, (2012) Modeling Within-Host Dynamics of Influenza Virus Infection Including Immune Responses, PLoS Computational Biology 8(6): e1002588. DOI: 10.1371/journal.pcbi.1002588. PMID: 22761567. NSF S-STEM Grant (Co-PI: Kasia Pawelek), USCB, 2013-2018, $601,650
Teaching or other professional experience in P-12 schools(9)	

SECTION II- LIST OF ASSESSMENTS

1.

Type and # assessment	Name of Assessment	Type or Form of Assessment	When the Assessment Is administered

Assessment #1: Licensure assessment, or other content based assessment (required)	Praxis II	ETS Examinations required for Licensure 1. Mathematics: Content Knowledge (10061) 2. Mathematics: Proofs, Models, and Problems, Part 1 (20063)	Junior and Senior Year
Assessment #2: Content knowledge in secondary mathematics education (required)	GPA in Major	This includes all courses as listed in the USCB Bulletin for major in mathematics in certification track	Throughout program (see courses to be included in description below)
Assessment #3: Candidate ability to plan instruction (required)	Lesson Plan Construction and Evaluation	Students will be required to follow state standards to set learning goals and plan for instruction by creating lesson plans and teaching materials which are then evaluated in multiple components.	Spring Semester of Senior Year (EDSE B490, Directed Teaching)
Assessment #4: Student teaching (required)	Internship Evaluations	Observational survey completed by supervising teacher indicating presence/absence of ten teaching behaviors.	Spring Semester of Senior Year (EDSE B490)
Assessment #5: Candidate effect on student leaning (required)	Impact on Student Learning Assignment	Assignment to specifically address the effects candidate's teaching has on students and address changes that may be beneficial.	Spring Semester of Senior Year (EDSE B490)
Assessment #6: Additional assessment that addresses NCTM standards (required)	Technology in Mathematics Education	The teacher candidate is introduced to technological resources relevant to the teaching profession including computer technology, educational software, and telecommunications. Candidates specifically learn to examine how applying technology in the classroom can be used to support teaching and learning in mathematics.	Spring Semester of Junior Year (EDCI B243)
Assessment #7: Additional assessment that addresses NCTM standards (optional)	History and Development of Mathematical Thought	Assessment of the candidate's knowledge and understanding of the history of ideas, persons, and cultures in the development of mathematical thought.	Spring Semester of Junior Year MATH B360

Assessment #8: Additional assessment that addresses NCTM standards (optional)	Interdisciplinary Training Project	The teacher candidate learns mathematical modeling of real world phenomena and studies interactions and dynamics. Candidates use computer software for simulations and graphing (currently, Maple® or Matlab®). Teacher candidates learn to research journal articles and develop scientific writing skills in a collaborative setting.	Spring Semester of Junior Year (MATH B419, MATH B460)

SECTION III - RELATIONSHIP OF ASSESSMENT TO STANDARDS

1. For each NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards. [Indicators are listed at http://www.nctm.org/about/ncate/secondary_indic.htm]

Mathematical Preparation for All Mathematics Teacher Candidates	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**
1. Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving.	X	X				X	X
2. Knowledge of Reasoning and Proof, Candidates reason, construct, and evaluate mathematical arguments and develop as appreciation for mathematical rigor and inquiry.	X	X					X
3. Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.		X				X	
4. Knowledge of Mathematical Connections. Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.		X					
5. Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.		X				X	X
6. Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics.		X				X	
7. Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning.		X			X		
8. Knowledge of Mathematics Pedagogy. Candidates possess a deep understanding of how students learn mathematics and of the pedagogical knowledge specific to mathematics teaching and learning.		X	X	X	X		
9. Knowledge of Number and Operations. Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations	X	X					X

10. Knowledge of Different Perspectives on Algebra. Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.		X					X
11. Knowledge of Geometries. Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.	X	X					X
12. Knowledge of Calculus, Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.	X	X					X
13. Knowledge of Discrete Mathematics. Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.	X	X					
14. Knowledge of Data Analysis, Statistics and Probability. Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.	X	X					
15. Knowledge of Measurement. Candidates apply and use measurement concepts and tools.	X	X					X

2. 16.1 Field-based Experience. Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating in both middle and secondary mathematics classrooms under the supervision of experienced and highly qualified teachers. Information should be provided in Section I (Context) to address this standard.

Information is provided in Section I (Context).

3. 16.2 Field-based Experience. Experienced full-time student teaching secondary-level mathematics that is supervised by experienced and highly qualified teacher and a university or college supervisor with mathematics teaching experience. Information should be provided in Section I (Context) to address this standard.

Information is provided in Section I (Context).

4. For the NCTM standard on the chart below, identify the assessment(s) in Section II that address the standard. One assessment may apply to multiple NCTM standards.

	#1	#2	#3	#4	#5	#6	#7	#8
16.3 Field-Based Experience. Demonstrate the ability to increase students' knowledge of mathematics.					X			

SECTION IV - EVIDENCE FOR MEETING STANDARDS

DIRECTIONS: The 6-8 key assessments listed in Section II must be documented and discussed in Section IV. Taken as a whole, the assessments must demonstrate candidate mastery of the SPA standards. The key assessments should be required of all candidates. Assessments and scoring guides and data charts should be aligned with the SPA standards. This means that the concepts in the SPA standards should be apparent in the assessments and in the scoring guides to the same depth, breadth, and specificity as in the SPA standards. Data tables should also be aligned with the SPA

standards. The data should be presented, in general, at the same level it is collected. For example, if a rubric collects data on 10 elements [each relating to specific SPA standard(s)], then the data chart should report the data on each of the elements rather that reporting a cumulative score.

In the description of each assessment below, the SPA has identified potential assessments that would be appropriate. Assessments have been organized into the following three areas to be aligned with the elements in NCATE's unit standard 1:
• Content knowledge (Assessments 1 and 2)
• Pedagogical and professional knowledge, skills and dispositions (Assessments 3 and 4)
• Focus on student learning (Assessment 5)

Note that in some disciplines, content knowledge may include or be inextricable from professional knowledge. If this is the case, assessments that combine content and professional knowledge may be considered "content knowledge" assessments for the purpose of this report.

For each assessment, the compiler should prepare one document that includes the following items:

(1) A two-page narrative that includes the following:
a. A brief description of the assessment and its use in the program (one sentence may be sufficient);
b. A description of how this assessment specifically aligns with the standards it is cited for in Section III. Cite SPA standards by number, title, and/or standard wording.
c. A brief analysis of the data findings;
d. An interpretation of how that data provides evidence for meeting standards, indicating the specific SPA standards by number, title, and/or standard wording;
and

(2) Assessment Documentation
e. The assessment tool itself or a rich description of the assessment (often the directions given to candidates);
f. The scoring guide for the assessment; and
g. Charts that provide candidate data derived from the assessment.

The responses for e, f, and g (above) should be limited to the equivalent of five text pages each, however in some cases assessment instruments or scoring guides may go beyond five pages.

Note: As much as possible, combine all of the files for one assessment into a single file. That is, create one file for Assessment #4 that includes the two-page narrative (items a – d above), the assessment itself (item e above), the scoring guide (item f above, and the data chart (item g above). Each attachment should be no larger than 2 mb. Do not include candidate work or syllabi. There is a limit of 20 attachments for the entire report so it is crucial that you combine files as much as possible.

1. State licensure tests or professional examinations of content knowledge. NCTM standards addressed in this entry could include all of the standards 1-7 and 9-15. If your state does not require licensure tests or professional examinations in the content area, data from another assessment must

be presented to document candidate attainment of content knowledge. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

2. Assessment of content knowledge in mathematics. NCTM standards addressed in this entry could include but are not limited to Standards 1-7 and 9-15. Examples of assessments include comprehensive examinations, GPAs or grades, and portfolio tasks*. For post-baccalaureate teacher preparation, include an assessment used to determine that candidates have adequate content background in the subject to be taught. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

** For program review purposes, there are two ways to list a portfolio as an assessment. In some programs a portfolio is considered a single assessment and scoring criteria (usually rubrics) have been developed for the contents of the portfolio as a whole. In this instance, the portfolio would be considered a single assessment. However, in many programs a portfolio is a collection of candidate work—and the artifacts included*

3. Assessment that demonstrates candidates can effectively plan classroom-based instruction. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments include the evaluation of candidates' abilities to develop lesson or unit plans, individualized educational plans, needs assessments, or intervention plans. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

4. Assessment that demonstrates candidates' knowledge, skills, and dispositions are applied effectively in practice. NCTM standards that could be addressed in this assessment include but are not limited to standard 8. An assessment instrument used in student teaching or an internship should be submitted. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

5. Assessment that demonstrates candidate effects on student learning. NCTM standards that could be addressed in this assessment include but are not limited to Standard 8. Examples of assessments include those based on student work samples, portfolio tasks, case studies, follow-up studies, and employer surveys. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

6. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Assessment Required)

Provide assessment information as outlined in the directions for Section IV

7. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

8. Additional assessment that addresses NCTM standards. Examples of assessments include evaluations of field experiences, case studies, portfolio tasks, licensure tests not reported in #1, and

follow-up studies. (Optional)

Provide assessment information as outlined in the directions for Section IV

Assessment 1: Licensure assessment, or other content based assessment

(1) Narrative

a. Description of Assessment

The Praxis II Mathematics: Content Knowledge (CK) (061) and Mathematics: Proofs, Models, and Problems Part 1 (PMP1) (063) administered by The Educational Testing Service are the required state tests for licensure. CK (061) consists of 50 multiple choice questions with the use of a graphing calculator required. Successful completion of this exam requires the teacher candidate to understand and work with mathematical concepts, to reason mathematically, to make conjectures, to see patterns, to justify statements using informal logical arguments, to construct simple proofs. to solve problems by integrating knowledge from different areas of mathematics, to use various representations of concepts, to solve problems that have several solution paths, and to develop mathematical models and use them to solve real-world problems (ETS, 2009). PMP1 (063) consists of 4 constructed response tasks (1 proof, 1 model, and 2 problems) with the use of a graphing calculator required. Successful completion of this exam requires the teacher candidate to demonstrate knowledge of content in algebra and number theory; measurement, geometry and trigonometry; functions; data analysis, statistics (without calculus), and probability; and matrix algebra and discrete mathematics. The test places emphases on problem solving, reasoning and proof, and mathematical connections and representations (ETS, 2009). Candidates must pass at least one of the required tests before the start of the internship.

b. Alignment between NCTM Standards and Assessment 1

Topic Addressed by Assessment 5	NCTM Standard and Indicators
1. Content Knowledge	1 a
2. Mathematical Practices	2 a,b,c

c. NA

d. NA

(2) Documentation

e. NA

f. NA

g. NA

Assessment 2: GPA in Major

(Supporting *Documenting Course Grades as an Assessment of Candidate Content Knowledge*)

Instructions:
Completion of this mathematics content alignment table is one of the required components of the documentation requirements for programs using course grades as an assessment. This document is designed as a form and must be used for entering required information into each "Click here to enter text" box, which will expand as needed. Do not retype the form. Since this form is a template, it will open as a document to be renamed and saved upon completion. Separate forms by program level (e.g., undergraduate or graduate) and program type (e.g., MAT or M. Ed.) are required. Specific directions for completing the form based on the location of mathematics/mathematics education coursework completion follow:

Undergraduate Programs and Graduate Programs where Mathematics/Mathematics Education Coursework Taken at Submitting Institution

- Column 2: Specify selected course number(s) and name(s) of **required** coursework that addresses each competency listed in the first column. If no required coursework addresses a specific competency, enter "Not addressed."

- Column 3: Describe all technology and representational tools, including concrete models, used in **required** courses that address each competency listed in the first column. If required coursework does not include the use of technology and representational tools, enter "Not included."

- Column 4: Include course description(s) for all **required** courses listed in the second column. It is sufficient to include course descriptions by mathematical domain (e.g., algebra, statistics and probability) rather than by individual competency.

Graduate Program where Mathematics/Mathematics Education Coursework Taken at Another (Non-Submitting) Institution

- Column 2: Specify selected course number(s) and name(s) of **required** undergraduate coursework that addresses each competency listed in the first column. Describe the advising decision that ensures program completers have studied the required mathematics content. If no required coursework addresses a specific competency, enter "Not addressed."

- Column 3: Describe all technology and representational tools, including concrete models, used in **required** courses that address each competency listed in the first column. If not known, do not leave the cell blank; rather, enter "Not verifiable".

- Column 4: Include course description(s) for all **required** courses listed in the second column. It is sufficient to include course descriptions by mathematical domain (e.g., algebra, statistics and probability) rather than by individual competency.

- Include the transcript analysis form that is used by the program to determine sufficiency of undergraduate courses taken by a program candidate at another institution and to specify coursework required to remediate deficiencies in the mathematics acquirement of program

candidates or completers. The transcript analysis process must adhere to the *Guidelines for Documenting a Transcript Analysis*.

Institution Name	University of South Carolina Beaufort
Program Name	Mathematics- Secondary Mathematics Certification track
Program Type (e.g., Baccalaureate or M.Ed.)	Baccalaureate

A. Secondary Mathematics Teachers

All secondary mathematics teachers should be prepared with depth and breadth in the following mathematical domains: Number, Algebra, Geometry, Trigonometry, Statistics, Probability, Calculus, and Discrete Mathematics. All teachers certified in secondary mathematics should know, understand, teach, and be able to communicate their mathematical knowledge with the breadth of understanding reflecting the following competencies for each of these domains.

A.1. Number and Quantity To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to number and quantity with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Represent-ational Tools Including Concrete Models by Competenc y**	**Course Description(s)**

A.1.1 Structure, properties, relationships, operations, and representations including standard and non-standard algorithms, of numbers and number systems including integer, rational, irrational, real, and complex numbers	MATH B141: Calculus I, MATH B174: Discrete Mathematics, MATH B300: Introduction to Proof, MATH B360: History of Mathematics	Whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B141 - CALCULUS I (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115) Introduction to fundamental concepts and theorems of limits, continuity, and derivatives; rates of change; differentiation rules for algebraic and transcendental functions, including the chain rule; applications of derivatives; introduction to integration, including the Fundamental Theorem of Calculus and u-substitution; areas between curves. MATH B142 - CALCULUS II (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B141)Techniques of integration, applications of the integral, L"Hospital's Rule, improper integrals; sequences and series of real numbers, power and Taylor series, introduction to polar coordinates. MATH B174 - DISCRETE MATHEMATICS (3).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115) Induction, complexity, elementary counting, combinations and permutations, recursion and recurrence relations, graphs and trees; discussion of the design and analysis of algorithms. MATH B230 – LINEAR ALGEBRA (3).(Prerequisite: MATH B141 or consent of instructor) Linear
A.1.2Fundamental ideas of number theory (divisors, factors and factorization, primes, composite numbers, greatest common factor, least common multiple, and modular arithmetic)	MATH B360: History of Mathematics, MATH B421: Mathematics for Secondary Teachers	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.1.3Quantitative reasoning and relationships that include ratio, rate, and proportion and the use of units in problem situations	MATH B141: Calculus I, MATH B142 Calculus II	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.1.4 Vector and matrix operations, modeling, and applications	MATH B230: Linear Algebra	Whiteboard/ calculator/ computer/ Maple® as appropriate	

A.1.5 Historical development and perspectives of number, number systems, and quantity including contributions of significant figures and diverse cultures	MATH B141: Calculus I, MATH B360: History of Mathematics, MATH B421: Mathematics for Secondary Teachers	Whiteboard/ calculator/ computer/ Maple® as appropriate	systems and matrices, vector spaces, linear independence, rank of a matrix, linear transformations, determinants, introduction to eigenvalues and eigenvectors, diagonalization and applications. MATH B300: Introduction to Proof- (3) (Prereq: MATH B240 or consent) Introduction to proof techniques (including quantifiers and induction) with emphasis on developing abilities in construction of and writing proofs; elementary logic, set theory, functions and relations, and selected topics in major areas of mathematics. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics. MATH B421: Mathematics for Secondary Teachers- (3) (Prereq: Acceptance into Mathematics-Secondary Mathematics Certification track-, and, Senior Standing or consent) Survey of properties and algebra of real numbers and complex numbers; properties and representations of polynomial, rational, exponential, logarithmic, trigonometric functions; concepts of calculus including limits, derivatives, integrals. Euclidean and non-Euclidean geometries, including analytic geometry; concepts and applications of probability and data analysis; concepts and applications of discrete mathematics, including number theory.

A.2. Algebra To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to algebra with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Representational Tools Including Concrete Models by Competency**	**Course Description(s)**
A.2.1 Algebraic notation, symbols, expressions, equations, inequalities, and proportional relationships, and their use in describing, interpreting, modeling, generalizing, and justifying relationships and operations	MATH B141: Calculus I, MATH B300: Introduction to Proof, MATH B421: Mathematics for Secondary Teachers	Whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B141 - CALCULUS I (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115) Introduction to fundamental concepts and theorems of limits, continuity, and derivatives; rates of change; differentiation rules for algebraic and transcendental functions, including the chain rule; applications of derivatives; introduction to integration, including the Fundamental Theorem of Calculus and u-substitution; areas between curves.

A.2.2 Function classes including polynomial, exponential and logarithmic, absolute value, rational, trigonometric, including those with discrete domains (e.g., sequences), and how the choices of parameters determine particular cases and model specific situations	MATH B141: Calculus I, MATH B142: Calculus II, MATH B240: Differential Equations	Whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B142 - CALCULUS II (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B141)Techniques of integration, applications of the integral, L"Hospital's Rule, improper integrals; sequences and series of real numbers, power and Taylor series, introduction to polar coordinates. MATH B174 - DISCRETE MATHEMATICS (3).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115)Induction, complexity, elementary counting, combinations and permutations, recursion and recurrence relations, graphs and trees; discussion of the design and analysis of algorithms. MATH B230 – LINEAR ALGEBRA (3).(Prerequisite: MATH B141 or consent of instructor) Linear systems and matrices, vector spaces, linear independence, rank of a matrix, linear transformations, determinants, introduction to eigenvalues and eigenvectors, diagonalization and applications. MATH B240 – CALCULUS III (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B142)Parametric equations, polar coordinates, three dimensional analytic geometry, cylindrical and spherical coordinates, vector functions, functions of several variables, partial differentiation, max-min, Lagrange multipliers, multiple
A.2.3 Functional representations (tables, graphs, equations, descriptions, recursive definitions, and finite differences), characteristics (e.g., zeros, intervals of increase or decrease, extrema, average rates of change, domain and range, and end behavior), and notations as a means to describe, reason, interpret, and analyze relationships and to build new functions	MATH B141: Calculus I, MATH B174: Discrete Mathematics	Whiteboard/ calculator/ computer/ Maple® as appropriate	

A.2.4 Patterns of change in linear, quadratic, polynomial, and exponential functions and in proportional and inversely proportional relationships and types of real-world relationships these functions can model	MATH B141: Calculus I, MATH B142: Calculus II	Whiteboard/ calculator/ computer/ Maple® as appropriate	integrals and applications, integral vector calculus. MATH B300: Introduction to Proof- (3) (Prereq: MATH B240 or consent) Introduction to proof techniques (including quantifiers and induction) with emphasis on developing abilities in construction of and writing proofs; elementary logic, set theory, functions and relations, and selected topics in major areas of mathematics. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics. MATH B410: Abstract Algebra I- (3) (Prereq: MATH B300) An introduction to the theory of groups, rings and fields. Topics include normal subgroups, quotient groups, homomorphisms, Cayley's theorem, permutation groups, ideals, the field of quotients of an integral domain, and polynomial rings. MATH B421: Mathematics for Secondary Teachers- (3) (Prereq: Acceptance into Mathematics-Teaching Certificate track, and, Senior Standing or consent) Survey of properties and algebra of real numbers and complex numbers; properties and representations of polynomial, rational, exponential, logarithmic, trigonometric functions; concepts of calculus including limits, derivatives, integrals. Euclidean and non-Euclidean geometries, including analytic geometry; concepts and applications of probability and data analysis; concepts and applications of discrete mathematics, including number theory.
A.2.5 Linear algebra including vectors, matrices, and transformations	MATH B230: Linear Algebra, MATH B240: Calculus III	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.2.6 Abstract algebra, including groups, rings, and fields, and the relationship between these structures and formal structures for number systems and numerical and symbolic calculations	MATH B410: Abstract Algebra	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.2.7 Historical development and perspectives of algebra including contributions of significant figures and diverse cultures	MATH B360: History of Mathematics	Whiteboard/ calculator/ computer/ Maple® as appropriate	

A.3. Geometry and Trigonometry To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to geometry and trigonometry with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Representational Tools Including Concrete Models by Competency**	**Course Description(s)**
A.3.1 Core concepts and principles of Euclidean in two and three dimensions and two-dimensional non-Euclidean geometries.	MATH B390: Modern Geometry	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B141 - CALCULUS I (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH 115) Introduction to fundamental concepts and theorems of limits, continuity, and derivatives; rates of change; differentiation rules for algebraic and transcendental functions, including the chain rule; applications of derivatives; introduction to integration,

A.3.2 Transformations including dilations, translations, rotations, reflections, glide reflections; compositions of transformations; and the expression of symmetry in terms of transformations	MATH B390: Modern Geometry, MATH B421: Mathematics for Secondary Teachers	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	including the Fundamental Theorem of Calculus and u-substitution; areas between curves. MATH B142 - CALCULUS II (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B141)Techniques of integration, applications of the integral, L"Hospital's Rule, improper integrals; sequences and series of real numbers, power and Taylor series, introduction to polar coordinates. MATH B230 – LINEAR ALGEBRA (3).(Prerequisite: MATH B141 or consent of instructor) Linear systems and matrices, vector spaces, linear independence, rank of a matrix, linear transformations, determinants, introduction to eigenvalues and eigenvectors, diagonalization and applications. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics. MATH B390: Modern Geometry- (3) (Prereq: MATH B300) An axiomatic approach to the fundamental ideas of Euclidean and non-Euclidean geometries. MATH B421: Mathematics for Secondary Teachers- (3) (Prereq: Acceptance into Mathematics-Teaching Certificate track, and, Senior Standing or consent) Survey of properties and algebra of real numbers and complex numbers;
A.3.3 Congruence, similarity and scaling, and their development and expression in terms of transformations	MATH B230: Linear Algebra, MATH B240: Calculus III, MATH B390: Modern Geometry	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.3.4 Right triangles and trigonometry	MATH B141: Calculus I	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.3.5 Application of periodic phenomena and trigonometric identities	MATH B141: Calculus I, MATH B142: Calculus II, MATH B242: Differential Equations	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	

A.3.6 Identification, classification into categories, visualization, and representation of two- and three-dimensional objects (triangles, quadrilaterals, regular polygons, prisms, pyramids, cones, cylinders, and spheres)	MATH B421: Mathematics for Secondary Teachers	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	properties and representations of polynomial, rational, exponential, logarithmic, trigonometric functions; concepts of calculus including limits, derivatives, integrals. Euclidean and non-Euclidean geometries, including analytic geometry; concepts and applications of probability and data analysis; concepts and applications of discrete mathematics, including number theory.
A.3.7 Formula rationale and derivation (perimeter, area, surface area, and volume) of two- and three-dimensional objects (triangles, quadrilaterals, regular polygons, rectangular prisms, pyramids, cones, cylinders, and spheres), with attention to units, unit comparison, and the iteration, additivity, and invariance related to measurements	MATH B421: Mathematics for Secondary Teachers	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.3.8 Geometric constructions, axiomatic reasoning, and proof	MATH B390: Modern Geometry	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	

A.3.9 Analytic and coordinate geometry including algebraic proofs (e.g., the Pythagorean Theorem and its converse) and equations of lines and planes, and expressing geometric properties of conic sections with equations	MATH B390: Modern Geometry, MATH B421: Mathematics for Secondary Teachers	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.3.10 Historical development and perspectives of geometry and trigonometry including contributions of significant figures and diverse cultures	MATH B360: History of Mathematics , MATH B390: Modern Geometry, MATH B421: Mathematics for Secondary Teachers	Geometer's Sketchpad (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	

A.4. Statistics and Probability To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to statistics and probability with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Representational Tools Including Concrete Models by Competency**	**Course Description(s)**
A.4.1 Statistical variability and its sources and the role of randomness in statistical inference	STAT B340: Introduction to Probability and Statistics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	STAT B340 – INTRODUCTION TO PROBABILTY AND STATISTICS (3). (Prerequisite: MATH B240 or permission of instructor). Set theory; distributions of both discrete and continuous random variables; moments (including moment generating and characteristic functions); limit theorems; multivariate distributions including marginal and conditional distributions; confidence intervals and hypothesis tests. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics.
A.4.2 Creation and implementation of surveys and investigations using sampling methods and statistical designs, statistical inference (estimation of population parameters and hypotheses testing), justification of conclusions, and generalization of results	STAT B340: Introduction to Probability and Statistics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	

A.4.3 Univariate and bivariate data distributions for categorical data and for discrete and continuous random variables, including representations, construction and interpretation of graphical displays (e.g., box plots, histograms, cumulative frequency plots, scatter plots), summary measures, and comparisons of distributions	STAT B340: Introduction to Probability and Statistics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.4.4 Empirical and theoretical probability (discrete, continuous, and conditional) for both simple and compound events	STAT B340: Introduction to Probability and Statistics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.4.5 Random (chance) phenomena, simulations, and probability distributions and their application as models of real phenomena and to decision making	STAT B340: Introduction to Probability and Statistics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	

A.4.6 Historical development and perspectives of statistics and probability including contributions of significant figures and diverse cultures	STAT B340: Introduction to Probability and Statistics, MATH 360: History of Mathematics	R, Excel®, SPSS® (or alternate), whiteboard/ calculator/ computer/ Maple® as appropriate	
A.5. Calculus To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to calculus with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Represent-ational Tools Including Concrete Models by Competenc y**	**Course Description(s)**
A.5.1 Limits, continuity, rates of change, the Fundamental Theorem of Calculus, and the meanings and techniques of differentiation and integration	MATH B141: Calculus I	Whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B141 - CALCULUS I (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115)Introduction to fundamental concepts and theorems of limits, continuity, and derivatives; rates of change; differentiation rules for algebraic and transcendental functions, including the chain rule; applications of derivatives; introduction to integration, including the Fundamental Theorem of Calculus and u-substitution; areas between curves.
A.5.2 Parametric, polar, and vector functions	MATH B142: Calculus II, MATH B240: Calculus III	Whiteboard/ calculator/ computer/ Maple® as appropriate	

A.5.3 Sequences and series	MATH B142: Calculus II	Whiteboard/ calculator/ computer/ Maple® as appropriate	MATH B142 - CALCULUS II (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B141) Techniques of integration, applications of the integral, L"Hospital's Rule, improper integrals; sequences and series of real numbers, power and Taylor series, introduction to polar coordinates. MATH B240 – CALCULUS III (4).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B142)Parametric equations, polar coordinates, three dimensional analytic geometry, cylindrical and spherical coordinates, vector functions, functions of several variables, partial differentiation, max-min, Lagrange multipliers, multiple integrals and applications, integral vector calculus. MATH B242 - ELEMENTARY DIFFERENTIAL EQUATIONS (3).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B142) Ordinary differential equations of first order, higher order linear equations, Laplace transform methods, series methods; numerical solution of differential equations. Applications to physical sciences and engineering. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics.
A.5.4 Multivariate functions	MATH B240: Calculus III	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.5.5 Applications of function, geometry, and trigonometry concepts to solve problems involving calculus	MATH B141: Calculus I, MATH B142: Calculus II, MATH B240: Calculus III, MATH B242: Differential Equations	Whiteboard/ calculator/ computer/ Maple® as appropriate	
A.5.6 Historical development and perspectives of calculus including contributions of significant figures and diverse cultures	MATH B141: Calculus I, MATH B142: Calculus II, MATH B240: Calculus III, MATH B242: Differential Equations, MATH B360: History of Mathematics	Whiteboard/ calculator/ computer/ Maple® as appropriate	

A.6. Discrete Mathematics To be prepared to develop student mathematical proficiency, all secondary mathematics teachers should know the following topics related to discrete mathematics with their content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:	**Required Course Number(s) and Name(s)**	**Technology and Representational Tools Including Concrete Models by Competency**	**Course Description(s)**
A.6.1 Discrete structures including sets, relations, functions, graphs, trees, and networks	MATH B174: Discrete Mathematics	Whiteboard/ calculator/computer/Maple® as appropriate	MATH B174 - DISCRETE MATHEMATICS (3).(Prerequisite: qualification through placement or a grade of 'C' or better in MATH B115)Induction, complexity, elementary counting, combinations and permutations, recursion and recurrence relations, graphs and trees; discussion of the design and analysis of algorithms. MATH B360: History of Mathematics- (3) (Prereq: MATH B300 or consent) A survey of the historical development of mathematics.
A.6.2 Enumeration including permutations, combinations, iteration, recursion, and finite differences	MATH B174: Discrete Mathematics	Whiteboard/ calculator/computer/Maple® as appropriate	
A.6.3 Propositional and predicate logic	MATH B174: Discrete Mathematics	Whiteboard/ calculator/computer/Maple® as appropriate	
A.6.4 Applications of discrete structures such as modeling and solving linear programming problems and designing data structures	MATH B174: Discrete Mathematics	Whiteboard/ calculator/computer/Maple® as appropriate	
A.6.5 Historical development and perspectives of discrete mathematics including contributions of significant figures and diverse cultures	MATH B174: Discrete Mathematics, MATH B360: History of Mathematics	Whiteboard/ calculator/computer/Maple® as appropriate	

Assessment 3: Candidate ability to plan instruction

(1)
a. Description
Teaching candidates design and implement a unit of lesson plans for teaching important mathematical ideas in a high school setting. The unit is a chapter of lesson plans for each day the candidate will be teaching, including all assessments (quizzes, unit tests) the candidate will incorporate into the unit. At least one lesson plan incorporates the investigative use of electronic technology. In their initial practicum (EDSE B490), candidates teach these units and are asked to reflect upon them.

b. Alignment between NCTM Standards and Assessment 3

Topic Addressed by Assessment 3 NCTM Standard and Indicators	NCTM Standard and Indicators
3. Content Pedagogy	3 a,b,c,e,f,g
4. Mathematical Learning Environment	4 b,c,e
5. Impact on Student Learning	5 b

c. NA

d. NA

(2) Documentation

e. Please submit the following items as your unit plan:

1. Overview (narrative or bulleted list). Create a brief (one to two pages) summary of your unit plan that includes your goals and justification for your selection of activities and teaching methods. Specifically, how does your unit conform to the process standards endorsed by NCTM? What measures are you taking to promote conceptual understanding, and how will you assess conceptual and procedural understanding? Finally, we understand that inevitably
some decisions for your unit will be dictated by school and cooperating teacher expectations. Please

address in your overview how you would change your unit plan if this were your own class.

2. Complete lesson plans for each day that you will be teaching. Use the lesson plan template that has been required for all group and individual lesson plans in class. Please be sure to indicate whether you are planning for block or traditional schedules, and always include time estimates for the major parts of your lessons. *You are required to incorporate mathematics curricula and teaching materials from print and on-line resources of professional organizations where appropriate (cite your source). At least one lesson plan should incorporate the investigative use of electronic technology (e.g., Geometer Sketchpad demonstration, graphing calculator or computer activity).*
3. Copies of all handouts that you create to support your lessons.

4. Copies of all classwork and homework assignments, completely worked out. If you are giving homework assignments out of the textbook, please include copies of the textbook pages so that we can see your choices in problems.

5. Completely worked out copies of your unit test and quizzes, with point values and scoring policies indicated. Include your rubrics for grading these assessments.

You will be evaluated on the following dimensions (see rubric for point values):

1. Conceptual understanding– the extent to which your unit addresses conceptual understanding.

2. Student engagement –the extent to which your unit elicits students' thinking, active participation, and engagement.

3. Formative and summative assessment– the extent to which your assessment plans provide usable information about student understanding and achievement that is aligned with your instructional plans.

4. Clarity – the extent to which your lesson plans are readable, clear, and easy to follow.

5. Mathematical correctness – the extent to which your unit is mathematically correct.

6. Completeness – the extent to which your lesson plans contain required elements (learning outcomes, standards alignment, materials and resources, motivation/warm up, lesson procedure (all activities clearly detailed and problems completely worked out), closure, and assignment (completely worked out).

f. Basic Rubric/ Scoring Outline-

To be refined during EDSE B490 course development

Criteria	**L1**	**L2**	**L3**	**L4**
Conceptual Understanding				
Student Engagement				
Formative and Summative Assessment				
Clarity				
Mathematical Correctness				
Completeness				

L1 (0pt)– Candidate's submission does not demonstrate sufficient understanding
L2 (1pt)– Candidate's submission provides limited understanding
L3 (2pt)– Candidate's submission demonstrates adequate understanding
L4 (3pt)– Candidate's submission demonstrates mastery of topic

g. NA

Assessment 4: Student Teaching

(1)
a. Description

The internship experience is the culmination of the teacher preparation program and represents a bridge between theory and practice. The knowledge, skills, and dispositions developed through

formal course work, observational opportunities, and the field internship experience are put into practice through an intensive practical application of professional attributes as a teacher candidate.

Assisting, Developing, and Evaluating Professional Teaching (ADEPT) legislation passed by the South Carolina Legislature, requires that certain guidelines are followed in working with student interns.

ADEPT is designed to measure teacher performance in ten ADEPT Performance Standards (APS) pertain to planning, instruction, assessment and professionalism and is carefully aligned with nationally recognized professional standards.

ADEPT evaluators are trained to evaluate candidates' performance during informal and formal observations. University supervisors and mentor teachers must attend a one day ADEPT training session (if not already trained by their school districts) and participate in an orientation program designed to prepare the university supervisor and mentor teacher to supervise and evaluate the intern. Specifically, this training session involves an overview of all the ADEPT Performance Standards and of the related teaching tasks (with evaluation instruments) that Winthrop University has designed for the internship experience. In this way, university supervisors and mentor teachers are fully aware of the relationship between the state's ADEPT system and corresponding evaluations particular to the Winthrop program. Training of mentor teachers may also be implemented within each district.

Candidates receive an introduction to ADEPT in their fall semester Field Experience. They are evaluated a minimum of two times by both the university supervisor and mentor teacher. Additionally candidates are also evaluated at midterm and at the conclusion of the field experience. During the spring semester, candidates participate in, a three day Internship Institute where they receive ADEPT training and preparation for their Internship.

University supervisors are considered to be master teachers in their area of expertise and demonstrate the professional dispositions required. Whenever possible, interns are placed under the supervision of a full-time faculty member. If a person is not a full-time faculty member, the following qualifications must be met for part-time supervision: a) former teacher and/or administrator in public school division; b) at least 5 years of successful teaching within content of supervision; c) written or verbal recommendations of former supervisors or administrative colleagues; d) current or former state teacher's license; e) endorsement in the same level and broad-subject area as intern; and f) Master's degree.

Mentor teachers who evaluate teacher candidates using the ADEPT instrument must have the following

qualifications: 1) approval by principal and district office; 2) model excellence in teaching; 3) exhibit high expectations for students; 4) demonstrate strong skills in planning, oral/written communications, collaborative decision making, judgment, and human relations; 4) possess strong instructional skills and current content knowledge; 5) Display strong skills in collaborating with other teachers and parents; 6) have received an outstanding performance evaluation for the last two years of teaching; 7) have attained continued contract status; and 8) commit to the time and effort needed to serve as a mentor.

During the internship semester, formal observations of each candidate are conducted by a university supervisor and a mentor teacher. University supervisors conduct a minimum of three formal ADEPT

observations and mentor teachers conduct a minimum of five formal ADEPT observations. In addition to formal observations, both the mentor teacher and university supervisor collaborate in the evaluation of the intern's performance at midterm and at the conclusion of the internship period. If a candidate experiences difficulty in an internship, an action plan is developed in coordination with Student Academic Services, to assist the intern in meeting expectations for improvement.

The observations and evaluations of the intern's classroom teaching performance address all but two of the ADEPT Performance Standards. APS 1, long-term planning, is one of those standards; APS 10, fulfilling professional responsibilities, is the other standard not addressed through classroom observations.

In order to fulfill APS 1 (Long-range planning), interns complete a long-range plan for mathematics. This plan spans the entire semester in which the intern is in the school setting, and includes an overview of the assessment processes in use, a description of the classroom management system, and an analysis of contextual factors (including class demographics) that influence the approach to teaching. The APS 1 assignment, based on a template provided by the state ADEPT system is utilized.

For APS 10 (Fulfilling professional responsibilities), interns complete a questionnaire (based on a template provided by the state ADEPT system) in which they reflect on their own professional involvement in terms of, for example, advocating for students, working for organizational (school) goals, and continuing to be an active learner in the profession.

b. Alignment between ADEPT and/or NCTM Standards and Assessment 4

ADEPT PERFORMANCE STANDARD	NCTM STANDARD	HOW IS DATA COLLECTED?	WHO REVIEWS DATA?	HOW IS FEEDBACK GIVEN?
APS1: Long-range Planning	3 a,b,c,e,f 4 a,b,e 5 b,c 7 b,c	Long-range Plan	University Supervisor	Assistance from mentor Verbal and Written feedback
APS2: Short Range Planning of Instruction	3 a,c,d,e,f,g 4 a,b,c,d,e 7 b,c	Teacher Work Sample Short range plans developed by interns	Mentor Teacher University Supervisor	Daily Feedback Midterm Evaluation Final Evaluation Teacher Work Sample Rubric
APS3: Planning Assessments and Using Data	3 b,f,g 4e 5c 7 b,c	Teacher Work Sample	University Supervisor & EDUC 690 Capstone instructor	Daily Feedback Midterm Evaluation Final Evaluation Teacher Work Sample Rubric
APS4: Establishing and Maintaining High Expectations for Learners	3 c,g 4 b,c,d 5 a,b,c 7 b,c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation

APS5: Using Instructional Strategies to Facilitate Learning	3 b,c,d,e,g 4 b,c,e 5 b 7 b,c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation
APS6: Providing Content for Learners	3 a,b,c,d,e 4 b,c,e 5 b 6c 7 b,c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation
APS7: Monitoring, Assessing, and Enhancing Learning	3 f 5 c 6c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation
APS8: Maintaining an Environment that Promotes Learning	3 c,f 4 a,b,c,d,e 5 a,b 6b 7 b,c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation
APS9: Managing the Classroom	3 g 4 a,d 7 b,c	Classroom Observations Midterm Evaluation Final Evaluation	Mentor Teacher & University Supervisor	Verbal Feedback Observation Records Midterm Evaluation Final Evaluation
APS10: Fulfilling Professional Responsibilities Beyond the Classroom	6 a,b,c	APS 10 (Professionalism) assignment	University Supervisor	Verbal and Written Feedback

c. NA

d. NA

(2) Documentation

e. A rich description of Internship Final Evaluation of Teaching Evaluation is provided under the description section above for this assessment. Rubrics for the evaluation will be constructed upon program implementation and will be modeled on USCB's Department of Education rubrics.

f. **ADEPT APS 1 - Domain 1: Long-Range Plan**

ADEPT Performance Standard 1

An effective teacher facilitates student achievement by establishing appropriate long-range learning goals and by identifying the instructional assessment and management strategies necessary to help all students progress toward meeting these goals.

Key Elements	**1.A**	The teacher obtains **student information**, analyzes this information to determine the learning needs of all students, and uses this information to guide instructional planning.
	1.B	The teacher establishes appropriate standards-based long-range learning and developmental **goals** for all students.
	1.C	The teacher identifies and sequences **instructional units** in a manner that facilitates the accomplishment of the long-range goals.
	1.D	The teacher develops appropriate **processes for evaluating and recording** students' progress and achievement.
	1.E	The teacher plans appropriate **procedures for managing** the classroom.

Instructions to intern: Using this template, complete a Long-Range Plan for the course/content area(s) that your unit for the Teacher Work Sample (TWS) will address. While your TWS covers two weeks within the semester, your Long-Range Plan should cover the entire semester of your internship, and the entire scope of the course/content area(s) in which your TWS is completed. This Long-Range Plan is to be submitted to your university supervisor according to the timeframe she/he has scheduled for you. **Note: The *Mathematics Teacher Secondary Internship Evaluation Scoring Rubric*, from *Domain 1: Long-Range Planning* will be used to assess your Long-Range Plan.**

Section I: Student Information (Key Element APS 1.A)

Section II: Learning and Developmental Goals (Key Element APS 1.B)

List the major goals from the course/content area(s) that you are outlining.

Goals

Section III: Instructional Units and Assessments (Key Elements APS 1.C)

*In chronological order, list the units as they will occur in this course/content area(s) in the table below. Indicate in **bold** the Unit Topic or Title that is your Teacher Work Sample.*

Unit Topic or Title	Correlated Standards	Length (# days or weeks)	Assessment(s) (e.g., projects, quizzes, chapter/unit tests, homework assignments. Include weightings, if applicable.)

Section IV: Assessment Data (Key Element APS 1.D)

Describe your methods in this course/content area(s) for analyzing, evaluating, recording, and reporting student progress and achievement.

Section V: Classroom Management (Key Element APS 1.E)

Insert your classroom management plan or rules, which should include your expectations regarding student behavior during ***instructional and non-instructional*** *procedures and routines. Highlight the specific management demands of the course/content area(s) for this Long-Range Plan.*

Instructions to University Supervisor: After evaluating the intern's Long-Range Plan (using the *Internship Evaluation Scoring Rubric,* from *Domain 1: Long-Range Planning*), circle the appropriate performance level below.

<table>
<tr><td colspan="2">Supervisor name:</td><td rowspan="2">Circle one</td><td>Exceeds Expectations</td></tr>
<tr><td colspan="2"></td><td>Meets Expectations</td></tr>
<tr><td>Supervisor signature:</td><td>Date:</td><td></td><td>Does Not Meet Expectations</td></tr>
</table>

ADEPT APS 10: Fulfilling Professional Responsibilities Scoring Rubric

Using the expectation of a second-year teacher as the definition of the performance level "*Exceeds Expectations*," use your best judgment scoring the rubric below to rate the candidate's performance on <u>each</u> ADEPT key element 10.A-E.

Key Element		Data Source	*Exceeds Expectations (ADEPT expectation of 2nd year teachers)* (3 points)	Meets Expectations (2 points)	Does Not Meet Expectations (1 point)
10. A	The candidate is an advocate for the students.	APS 10 Items 1, 2	*The candidate works effectively with colleagues to help determine and meet individual student needs, and establishes appropriate professional relationships with others outside the school to support the well-being of students.*	The candidate attempts to work with colleagues to determine and meet individual student needs.	The candidate does not work with colleagues to determine and meet individual student needs.
10. B	The candidate works to achieve organizational goals in order to make the entire school a more positive and productive learning environment for the students.	APS 10 Item 3	*The candidate is an active contributor to school initiatives, and supports school-related organizations and activities.*	The candidate attempts to contribute to school initiatives, organizations, and/or activities as appropriate given the placement.	The candidate does not contribute to school initiatives, organizations, or activities.
10. C	The candidate is an effective communicator.	*Formative Observations & Internship Midterm/Final Evaluation Reports* APS 10 Item 4	*The candidate uses clear and correct oral and written language; and communicates effectively and regularly with parents.*	The candidate uses clear and correct oral and written language; and attempts to communicate with parents.	The candidate does not consistently use clear and correct oral and written language.

10. D	The candidate exhibits professional demeanor and behavior.***	*Formative Observations & Internship Midterm/ Final Evaluation Reports*	*The candidate: maintains all required professional credentials; adheres to all Standards of Conduct for South Carolina Educators and maintains ethical standards demonstrates self-management skills (e.g., responsibility, initiative, time management, appearance) and a high quality of work (e.g., completing required tasks in an accurate, timely and effective manner).* ****** Documented on Domain 5 of the Internship Midterm/Final Evaluation Report***	The candidate: adheres to all *Standards of Conduct for South Carolina Educators* and maintains ethical standards; demonstrates some self-management skills and a high quality of work.	The candidate: adheres to all *Standards of Conduct for South Carolina Educators* and maintains ethical standards; does not demonstrate self-management skills or a high quality of work.
10. E	The teacher is an active learner.	APS 10 Items 5, 6, 7	*The candidate: accurately identifies his or her own professional strengths and challenges; sets appropriate professional development goals; regularly seeks out, participates in, and contributes to activities that promote professional collaboration and that support his or her continued professional growth and development.*	The candidate: is able to identify professional strengths and challenges; and sets some appropriate professional development goals.	The candidate: is not able to identify his or her own professional strengths and challenges; and does not attempt to set professional development goals.

ADEPT Domain 5: Professionalism
APS 10: Fulfilling Professional Responsibilities

Candidate:	Semester:	Year:	Subject:
School/District:	Cooperating Teacher:	Supervisor:	Grade Level(s):

ADEPT Performance Standard 10		
An effective teacher is an ethical, responsible, contributing, and ever-learning member of the profession.		
Key Elements	**10. A**	The teacher is an **advocate** for the students.
	10. B	The teacher works to achieve **organizational goals** in order to make the entire school a positive and productive learning environment for the students.
	10. C	The teacher is an **effective communicator**.
	10. D	The teacher exhibits **professional demeanor** and behavior.
	10. E	The teacher is an **active learner**.

Instructions to the teacher candidate: *In narrative format, under each numbered item below, please reflect on your professional performance (APS 10.A, B, C, and E). Provide specificity and clear examples. Responses to each of the following items below should be limited to 100 words or less.*

1. Describe ways you collaborate with faculty in the school to help determine and meet individual student needs. (APS 10.A)

2. Describe two ways in which you demonstrate that all students can learn. (APS 10.A)

3. Describe the extent to which you actively participate in your school's professional learning community (e.g., attends and contributes to grade level meetings, faculty meetings, etc.). Your response should include the ways your participation helps make the school a positive and productive learning environment for all students. (APS 10.B)

4. The teacher candidate should be an effective communicator with faculty, staff, students, and parents. Elaborate on the variety of ways that you have communicated with the students' parents and attach a copy of a recent written communication to those parents (e.g., parent conferences, letters/newsletters, notes, e-mails, etc.). (APS 10.C)

5. In reference to the *ADEPT Performance Standards*, describe your professional strengths. How have you built on these strengths so far, and how do you plan to do so in the future? (APS 10.E)

6. In reference to the *ADEPT Performance Standards*, what are your professional challenges? How do you plan to address these challenges? (APS 10.E)

7. Based on your professional self-assessment, describe one important professional goal to support your professional growth (e.g., member of professional organization, participation in professional associations, courses, conferences, workshops, seminars, etc.). Explain why. (APS 10.E)

g. NA

Assessment 5: Candidate Effect on Student Learning

(1)
a. Description
The teaching intern is required to complete an Teacher Work Sample (TWS) during the internship which demonstrates proficiency in short and long range planning for instruction and analysis of student learning. The TWS is prepared under the guidance of the mentor teacher, the university supervisor, and the EDSE B490 instructor. The university supervisor and the EDSE B490 instructor are responsible for grading the work sample using the Teacher Work Sample (TWS) Rubric. In addition**,** the TWS provides evidence of candidates' mastery of the Conceptual Framework Organizing Concepts: III-The Curriculum and IV-The Teacher and the NCTM Standards. The TWS is designed to document the specific activities interns engage in to help students learn.

b. Alignment between NCTM Standards and Assessment 5

Topic Addressed by Assessment 5	NCTM Standard and Indicators
3. Content Pedagogy	3 b,f,g
4. Mathematical Learning Environment	4 b,c,d,e
5. Impact on Student Learning	5 a,b,c
6. Professional Knowledge and Skills	6 b,c
7. Secondary Mathematics Field Experiences and Clinical Practices	7 a,b,c

c. NA

d. NA

(2) Documentation

e. The TWS contains four sections (*Unit Context, Assessment Plan, Design for Instruction, Analysis of Student Learning Over Time*) identified by research and best practice as fundamental to improving student learning. Each section contains a task, a description of requirements, and a rubric that defines various levels of performance. These rubrics will be used to evaluate the TWS.

Candidates are required to teach a comprehensive unit. For the unit, candidates will describe contextual factors, identify learning goals based on the state content standards, create an assessment plan designed to measure student performance before (pre-assessment), during (formative assessment), and after (post-assessment) the unit, and plan for their instruction. After they teach the unit, the will analyze student assessment data and then reflect upon and evaluate their teaching as related to student learning.

f. *Description of Teacher Work Sample (TWS)*
The TWS details the development and implementation of the *TWS*. The *Teacher Work Sample Rubric* will be used to assess the *TWS*. These documents are below.

Teacher Work Sample

University of South Carolina Beaufort
Department of Mathematics and Computational Science

Introduction

The Teacher Work Sample (TWS) provides you with a structured experience to document the impact of your teaching on learners in your classroom. Knowing how to effectively document your progress with students is critical for teacher accountability. The TWS is designed to document the specific activities interns engage in to help students learn. These activities provide evidence that you can apply in the classroom what you have learned in your course of study in the university and the Departments of Education and Mathematics and Computational Science.

Analysis of the strengths and weaknesses of the TWS will be used for instructional and programmatic improvements. Annually, data will provide the Department with important information that we use to improve our programs. For all instructional and programmatic improvements, your confidentiality will be maintained. Candidates' work will not be identified by name in any samples or publications.

Material for the TWS was adapted from The Renaissance Partnership for Improving Teacher Quality, a Title II federally funded project with offices at Western Kentucky University. The Teacher Work Sample was also modified from Winthrop University's *Teacher Work Sample* (2011).

Assignment

There are five dimensions identified by research and best practice as fundamental to improving student learning that are contained in the TWS. Each dimension contains a task, a description of requirements, and a rubric that defines various levels of performance. These rubrics will be used to evaluate your TWS.

You are required to teach a comprehensive two-week unit. To provide a brief overview, you will describe contextual factors, identify unit goals based on South Carolina Academic and NCTM Standards, create an assessment plan designed to measure student performance before (pre-assessment), during (formative assessment), after (post-assessment), and plan for your instruction. **One lesson must also include integration of technology.** After you teach the unit, you will analyze student assessment data and reflect upon and evaluate your teaching as related to student learning.

Format

- **Overview.** The TWS product should conform to the following outline:

  D.1 Contextual Factors
  D.2 Unit goals
  D.3 Assessment Plan and Pre-assessment Results
  D.4 Lesson Plans
  D.5 Post-assessment Plan and Results

- **Tables and assessment instruments**. Tables and assessment instruments are required as part of the TWS document. Each table should be consecutively labeled with a number and a short description (e.g., Table 4: Assessment Plan Overview). Computational tables must be completed in Excel®.

- **Narratives.** A **suggested** page length for your narrative is provided at the beginning of each dimension. You have some flexibility for length across components, but the total length of your written narrative **(excluding lesson plans and assessments)** should not exceed **14 word-processed pages in Microsoft Word**, double-spaced in **12-point font**, with 1-inch margins, and a header with name and page number. Narratives within lesson plans may be single-spaced.

- **References and credits.** Make sure to cite any information or ideas you obtain from published material or the Internet using the American Psychological Association (APA) style. APA guidelines can be located at the following website: http://www.apastyle.org/ and in the manual entitled *Publication Manual of the American Psychological Association Sixth Edition (2009) Washington, DC: American Psychological Association*).

- **Anonymity.** In order to ensure the anonymity of students in your class, do not include actual student names or identification (e.g., initials) or their work samples in any part of your TWS. Identify students by number (e.g., 1, 2, 3, etc.) only.

- **Mechanics.** Throughout the TWS, mastery of English language usage and writing skills and appropriate format are expected. Please note that mechanics are a part of the rubric score for each dimension.

- **Submission.**
  - You will submit the final copy of your TWS to LiveText. Include a title page, Table of Contents, and summary Reference page. All pages should be consecutively numbered from Dimension 1 through Dimension 5. ***Make sure that the LiveText submission is your final draft and includes all parts of the TWS clearly following the TWS Outline***.

  - Throughout the semester, individual dimensions of the TWS will be submitted in a variety of ways to your University Supervisor. As the dimension is assigned, you will be given submission directions.

Instruction for and Grading of the TWS

EDSE B490 University Supervisors and the EDSE B490 professor will provide instruction for Dimensions 1 - 5. In addition, cooperating teachers will provide guidance throughout the TWS. University Supervisors will grade the TWS with input from the EDSE B490 professor. A grading rubric for each dimension will be used to grade the TWS. There are a total of 5 dimensions and 5 rubrics. **To pass the TWS (and EDEC B469), you must score at least Acceptable on all 5 dimensions.** The final score on each dimension is the earned score based on the descriptors in the rubrics. University Supervisors will forward final TWS grades to the EDSE B490 professor.

Note: To pass EDSE B490 teacher candidates must score at least *Meets Expectations* on all ADEPT Domains included on the *Internship Midterm/Final Evaluation Report* and *Acceptable* on all 5 dimensions of the *TWS*.

Rewriting: You are permitted no more than one rewrite of each dimension. After you receive feedback on a dimension from your University Supervisor, you have the option of rewriting the dimension following the time frame established. If the first submitted product is deemed not gradable by your University Supervisor, he/she will score that dimension(s) as unacceptable. If any component is deemed unacceptable, regardless of your overall score, the unacceptable component must be

rewritten. The next submitted version is considered the one rewrite. The final score on each dimension is the earned score based on the descriptors in the rubrics.

Timeline for Teacher Work Sample by Dimension

The TWS is a recurrent process that requires time before, during, and after instruction; you cannot wait until you are finished teaching the unit to begin the TWS. This timeline is designed to guide you through the dimensions related to the planning, implementation and reflection for your unit. Your University Supervisor and cooperating teacher will give guidance as needed.

Cooperating teachers should always play a part in helping you develop appropriate lesson plans with appropriate assessments. In addition, cooperating teachers are particularly valuable in giving you information on students in the classroom for input on the contextual factors dimension and helping you make sure that your TWS goal(s) fit into the overall instructional program of the classroom.

Article I. Suggested Timeframe Table

	Dimension	Sequence
1	Contextual factors	**Before** unit starts (your first task)
2	Unit goals	**Before** unit starts
3.1	Pre-assessment	**Before** unit starts and after unit goals developed: pre-assessment instrument designed, approved, and administered.
3.2	Assessment plan and pre-assessment results	**Before** unit starts, after pre-assessment administered: pre-assessment data and analysis used to inform instruction; unit assessment plan developed. **During** unit: adjustments made.
4	Detailed lesson plans	**Before** unit starts and **during** unit
5	Post-assessment plan and results	**After** unit: post-assessment data and final analysis

Article II. Dimension 1. Contextual Factors

Suggested Page Length: 4-5 pages including Contextual Factors Table

Task
Discuss information about the learning-teaching context and how it will inform your instruction.

Through a variety of sources, such as conversations with school personnel, surveys of students and the cooperating teacher, build a contextual factors' background. After the information is gathered, complete a contextual factors table and write a narrative:

- Briefly describe relevant and most current characteristics of the **school** (e.g. AYP status and goals relating to student performance, parent involvement).
- Next, describe resources available in the schools and community relevant to your students and to your instruction (e.g. after school programs, sports programs, parks, libraries).
- Describe the physical **classroom** and the environmental demands (see glossary) that may affect student learning.
- Using a variety of documented sources, complete the Contextual Factors Table.

- Describe how specific relevant characteristics of **students** in your class and their functioning on critical assessments impact your decisions when designing your instruction and assessments.

- Use information from the Contextual Factors Table (see next page) and other sources to provide specific information on these categories. For example, if you have students who are identified as special education or gifted/talented in your class, note the number of students and type of exceptionalities and relevant Individual Education Plan (IEP) goals. If you have students who are native speakers of other languages, note the number of students and their approximate level of language proficiency [ex.: Limited English Proficiency (LEP) vs. English Language Learners (ELL), Gifted and Talented (G/T)] including all factors relevant to your classroom, and write a narrative. Keep in mind that this information is for the class for which you are teaching the unit.

- Describe general and specific implications for instruction and assessments throughout the work sample. Base these implications on information about the considerations (e.g. instructional, language, communication, social, behavior accommodations) needed for specific students. This is the bridge between the contextual factors and the work sample's content. Specify how the information you have gathered might affect your instruction and assessments.

Reference the sources you used to obtain this information. (Note that sources such as school documents are more reliable sources than your personal observations.) Along with in text citations, you should have a Reference page at the end of this section. However, as you add Dimensions to your TWS, the Reference page should move to the last page of the TWS document.

Table #1: Contextual Factors Table

***Student Number**	***Relevant Cultural Background Info ****	***Special Interests or Hobbies (Student Interview, Interest Inventory)***	***Math Level Scores and Test Used***	***Differentiation Needs (IEP, ELL, G/T)***	***Other Relevant Student Information***

**Devise own code not related to student SSN or official school ID.*

***Maintaining an asset perspective (see glossary) of your students, include meaningful information regarding culture/ family, that might help you better meet the students' needs (e.g. travel experiences, living in other states/countries, family professions, cultural traditions, beliefs).*

Article III. Dimension 2. Unit Goal(s)

Suggested Page Length: 2 pages including unit goals chart aligned with state and/or national standards and unit rationale

Task
The unit goal(s) guide the planning, delivery, and assessment of your unit. The unit goal(s) should be significant in that goals (see glossary) reflect all of the big ideas or concepts of the unit. The Unit goal(s) should be measurable, challenging, varied, and appropriate. From your unit goal(s), you will later formulate lesson objectives, which are more narrow and specific, but aligned with the achievement of the unit goal(s).

- Identify the South Carolina Academic Standard(s) or Common Core State Standard(s) and/or NCTM standards that will direct your unit. Use the standard(s) to create your unit goal(s). Limit the number of unit goals to <u>no more than 4</u>. If you have more than one unit goal, number your unit goals so they may be easily referenced throughout the unit. South Carolina Academic and Common Core State Standards list indicators after each standard. In some cases, those indicators may be used as unit goals.

- Consult your University Supervisor and cooperating teacher to help you select appropriate standards. They will guide you in developing the unit goal(s).

- Create a table where the standard(s) is/are listed with the related unit goal(s).

- <u>Construct a unit rationale</u>. In a paragraph, explain <u>why</u> students should learn about the topic of the unit. Describe real-life application (see glossary) for the learning. Merely stating that the lesson is part of the standards is not sufficient. Why should students be required to learn this material—what, beyond the standards, warrants the inclusion of the material in the unit? Explain how this information will connect to your students' lives.

Dimension 3. Assessment Plan and Pre-assessment Results

Suggested page length: 4-5 pages including table of pre-assessment results and table of assessment plan overview, plus a copy of pre-assessment.

Task
Design a pre-assessment (see glossary) and analyze the resulting student data. Use this information to develop an assessment plan for monitoring student progress toward the unit goal(s). Design **multiple** assessments that are aligned with the unit goal(s) to assess student learning during and after instruction. These assessments should authentically (see glossary) measure student learning and may include performance-based tasks, paper-and-pencil tasks, observation checklists, and/or others.

1. Designing a Pre-Assessment

Design a diagnostic pre-unit assessment that you will administer to your class **before** teaching the new unit you are planning. This brief assessment is a systematic way to gather information on what your students already know about the unit and what skills they already have related to the unit.

- Prioritize the content from your unit goal(s).

- Design a ***brief*** measure of the highest priority content central to mastering the unit goal(s). Your measure(s) should address both demonstration of *understanding/knowledge* **and** the performance of key *skills* addressing a range of understanding and skills from easy to difficult associated with the unit. **Label** each item or element of the pre-assessment with the unit goal(s) it measures. The assessment should contain directions for students to follow as well as point values for each question type.

- The pre-assessment should be reviewed by your cooperating teacher prior to the submission to University Supervisor. The pre-assessment should be submitted to your University Supervisor prior to the administration of the assessment and with ample time to make necessary corrections.

Design a simple, clear scoring method. For example, use 3, 4, or 5 items per task, so you can convert scores easily to percentage correct. Other hints: Be sure to include *difficult* knowledge and skills to avoid a ceiling effect (see glossary). Also steer clear of time-consuming tasks such as essay questions or lengthy multiple choice tests on material you do not expect students to know yet. This helps prevent wasting time and avoids pain or embarrassment for students. Clearly explain how you will evaluate or score the pre-assessment **(including mastery levels as defined on cooperating teacher's grading scale)** to determine if the students' performance meets the unit goal(s). **Include all scoring instruments such as rubrics, observation checklists, rating scales, item weights, and/or answer keys.**

2. Pre-Assessment Results and Analysis

Summarize the results of the pre-assessment and analyze the data to develop an assessment plan for monitoring student progress toward the unit goal(s).

- Create a table (example below) in Excel® showing the pre-assessment results **for the unit goal(s) or each unit goal**. (Complete only columns 1 & 2). Compute the averages and report classroom results for each unit goal. **You will need a separate table for each unit goal.**

- Analyze the data and link to contextual factors to find patterns of student performance. Describe the patterns you find and how this information will guide specific instructional decisions. **If necessary, revise the unit goal(s), pre-assessment and/or instructional decisions based on pre-assessment results.** Describe the reasoning behind the revision of the goal and instructional revisions. Using your pre-assessment data and the Contextual Factors Table, list individual students and ideas for differentiation (see glossary). Make sure to include any applicable IEP, ELL, reading, math, communication difficulties or extensions for highly motivated and/or advanced students in your accommodations.

Table #: Results for Unit Goal # (Excel® Table)

Column 1 *Student Number*	***Column 2*** *Differentiation Needs (ELL, IEP, G/T)*	***Column 3*** *Pre-unit measure (% of total)*	***Column 4*** *Post-unit measure (% of total)*	***Column 5*** *Change in Percentage Points*	***Column 6*** *Was unit goal met? (Yes or No)*
# of 1st student					
(List each student # on a separate line; list ALL students)					
From Col 1: Total number of students:		***Column 2: Average pre-unit score (%):***	***Column 3: Average post-unit score (%):***	***Column 5: Total number of students making gains:***	***Column 6: Total number of students meeting this unit goal:***

- Provide an overview of your assessment plan in a table (refer to example below). List the assessments by unit goal used to judge student performance **before (pre-), during,** and **after (post-)** instruction. The purpose of this table is to illustrate the alignment between unit goals and assessments. Your formative (see glossary) and post-assessments (see glossary) will depend on the size and scope of your unit and the results of your pre-instruction assessment.

Table #: Assessment Plan Overview

Unit goal Addressed	Pre-Instruction Assessment Description(s)	During Instruction Assessment (Formative) Description(s)	Post-Instruction Assessment Description(s)
Unit goal 1			
Unit goal 2			
Unit goal 3			
Unit goal 4			

Dimension 4. Detailed Lesson Plans

Suggested Page length: 3- 4 pages plus 5 representative lesson plans including lesson assessments

Task

You must include at least 5 representative lesson plans for your unit. Each unit goal should be represented in at least one lesson plan. In addition, at least one lesson plan will demonstrate use of technology by teacher candidate and/or students *.

Make a table (example below) that shows where, within the unit, these 5 lessons fall **(and bold each one of the five lesson plans only)**. Include all lessons taught during the unit in the table highlighting those included in the TWS. Along with your table, in a brief paragraph, explain why you chose these 5 lessons as representative lessons.

Table #: Lesson Plan Overview

Lesson #	Unit Goal Addressed	Brief Description

Your submitted lesson plans will follow the outline table. **Make sure that all assessments used are submitted with each lesson plan.**

Each lesson plan must follow the format for the Lesson Plan template and include *all components:*

- **Related state, CCSS and/or national standards and specific objectives** of the lesson with **aligned assessment(s).**
- **Relevance to the unit goal(s)**
- **Materials/Resources/Equipment/References** needed for the lesson (for teacher and students).
- **Introductions and Procedures/ steps of instruction including content** written in detail so anyone could teach your lesson.
- **Differentiation of Instruction (accommodations/modifications/extensions) -** Information on student needs and previous assessment results from Dimension 1 (Contextual Factors) will inform your differentiation and/or interventions (accommodations/modifications/extensions)**.** List these interventions by student number within each lesson plan. As much as possible, the interventions should be specific to each plan. Students with IEPS or who are ELL or GT should have specific

accommodations/modifications/extensions. **It may be appropriate to consult with other school personnel (special education teacher, ELL teacher) in creating interventions for special populations.**

- **All assessments,** formative or summative, formal or informal for each less are listed and attached.

- **Analysis of Student Learning and Reflection (refer to questions posed on Lesson Plan Components for each)** on each lesson that includes:

  1. **Use of data to summarize student performance and analyze** whether students learned what was intended.
  2. Explanation of what you will do to **increase student learning in future instruction** through interventions (accommodations/modifications, extensions with accommodations/modifications, etc.)

  ✓ Examples of instructional technology might include computer hardware and software, the Internet,
  "smart" board, digital cameras, digital camcorders, digital audio players, heart-rate monitors, midi keyboards, digital microscopes, handheld computers/calculators, and data collection probes.

  ✓ Examples of technology integration might include students using multimedia software to create presentations; students using spreadsheet/graphing software analyze data; students using digital video to tell a story; students with special needs/ELL using assistive technology to meet curricular objectives.

Using a word processor to type lesson plans, showing a video or using the overhead projector, or candidate e-mail communication are ***not*** considered instructional technology for this assignment.

Article IV. Dimension 5. Post-Assessment Plan and Results

Suggested Page length: 3- 5 pages including pre- and post-table(s) plus copy of post-assessment

Task

Analyze your assessment data, including pre-/post-assessments and formative assessments, to determine students' progress toward meeting the unit goal(s). You will also describe instructional decision making related to unit activities, modification, and technology.

- Design and attach a post-assessment for your unit topic. Make sure that you **align** and **label** each item of the post-assessment with the unit goal(s) and state the point value. Include prompts and/or student directions. Clearly explain how you evaluated or scored the post-assessment. Review the **mastery level** established in Dimension 3 to determine if the students' performance met the unit goal(s). Include all scoring instruments such as rubrics, observation checklists, rating scales, item weights, tests, and/or **answer key(s)**.

- Describe the post-assessment and how it is aligned with your unit goal(s). If the post-assessment is different than the pre-assessment, explain the differences and the rationale for modifying. If the post-assessment is the same, justify this decision.

- For each unit goal, copy and insert the table from Dimension 3. The completed table (example below) should include the following information for all students in the class: student number (Column 1), differentiation needs (Column 2), pre-unit measure (Column 3), post-unit measure (Column 4), gains (Column 5), and whether the Unit goal was met for each student (Column 6). Use percent of total correct for Columns 3 and 4. The purpose of this table is to provide an overview of the impact of your instruction on students' attainment of **each** unit goal.

Table #: Results for Unit Goal # [Sample]

Column 1 Student Number	**Column 2** Differentiation Needs (IEP, ELL, G/T)	**Column 3** Pre-unit measure (% of total)	**Column 4** Post-unit measure (% of total)	**Column 5** Change in percentage points	**Column 6** Was Mastery of the Unit Goal met?
Student #1	IEP	25%	70%	45%pts	No
Student #2	GT	80%	100%	25% pts	yes
Student #3	IEP	50%	80%	30%pts	no
Student #4	GT	60%	65%	5%pts	no
Student #5	NONE	70%	85%	15%pts	yes
Student #6	NONE	77%	80%	3%pts	no
Student #7	ELL	45%	60%	15%pts	no
Student #8	ELL	70%	88%	18%pts	yes
Student #9	GT	100%	100%	0%pts	yes
Student #10	NONE	85%	88%	3%pts	yes
Column 1 Total number of students:		**Column 3** Average pre-unit score (%):	**Column 4** Average post-unit score (%):	**Column 5** Total number of students making gains:	**Column 6** Total number of students meeting this unit goal:

- Write a **summary of the class progress** to address the following prompts:
  1. Use the overall pre- and post-assessment data to describe the impact on student learning of the entire unit. Make sure to reference the data to support your conclusions.
  2. On which unit goal or lesson objective did students do well? Why do you think so?
  3. On which unit goal or lesson objective did students do poorly? Why do you think so?
  4. On the unit goal or lesson objective on which students did poorly, what would you change instructionally and why to ensure mastery by all students?
  5. Using your Excel® data table, choose one learning goal and **sort the data by mastery or gains.** Include sorted table(s) and discuss individual students who met mastery (85%) or did not meet mastery or who made significant or minimal gains.

Table# : Results for Unit Goal# Sorted by Mastery Sample

Student Number	ELL, IEP, GT	Pre-unit assessment (% of total)	Post-unit assessment (% of total)	Changes in percentage points	Was Mastery of the Unit Goal Met?
Student #6	None	77%	80%	03%pts	no
Student #4	GT	60%	65%	05%pts	no
Student #7	ELL	45%	60%	15%pts	no
Student #3	IEP	50%	80%	30%pts	no
Student #1	IEP	25%	70%	45%pts	no
Student #9	GT	100%	90%	-10%pts	yes
Student #10	None	85%	88%	03%pts	yes
Student #5	None	70%	85%	15%pts	yes
Student #8	ELL	70%	88%	18%pts	yes
Student #2	GT	80%	100%	20%pts	yes

6. Discuss interventions (accommodations/modifications/extensions) you used for students including those described in Dimension 1 and others. Explain which were most effective, which were least effective, and why you think so.

7. Instructional Technology:
   a. Looking over your entire unit, list all of the ways you and/or your students used instructional technology, including any Assistive Technology.
   b. Reflect on the benefits and drawbacks of the technology you chose to use.

IMPORTANT: Mastery of English language usage and writing skills and appropriate format are expected.

Glossary

Accommodations – Support provided to diverse learners needed to successfully demonstrate learning. Accommodations should not change expectations or standards and/or assessment.

Align – Showing direct connection between two ideas.

Asset perspective - An asset approach does not start with what is lacking or problematic. It focuses on what capacities the individual has, that are assets. It is referred to as the glass "half-full" approach.

Authentic – Activities and assessments that resemble real world tasks.

Ceiling effect - Occurs when a student attains the maximum score or attains the maximum score or "ceiling" on an assessment and thus prevents the appraisal of the full extent of the student's knowledge.

Contextual Factors – Description of pertinent community/school/classroom characteristics that may influence teaching and learning.

Differentiate – Recognizing students varying background knowledge, readiness, language, preferences in learning, interests, and reacting responsively in designing instruction. Differentiated instruction is a process to approach teaching and learning for students of differing abilities in the same class. The intent of differentiating instruction is to maximize each student's growth and

individual success by meeting each student where he or she is, and assisting in the learning process (http://www.cast.org/publications/ncac/ncac_diffinstruc.html).

Environmental Demands - The environment demands that can or may interfere with learning. One such demand can be the climate of the classroom, including temperature, noise, uncomfortable seating arrangements, and/or students in groups that place their back to the teacher and/or board. In addition, students working in small groups can present an environmental demand that is difficult for some group members who may have difficulty concentrating on their group's discussion since they are distracted by conversations of other groups.

Formative Assessment – Measurement of student learning taken during unit instruction in order to make necessary changes to teaching to ensure mastery of unit goals. Feedback from formative assessment should also be provided to students with opportunity for improvement.

Interventions – Accommodations or modifications made to instruction and assessment to meet the needs of diverse learners.

Unit goals – Big ideas or concepts of the unit; driven by state or national academic standards.

Lesson Objective – A measureable statement of student achievement that is within a specific lesson that leads to achieving unit goal. Includes a behavior, condition, and criterion for mastery.

Modifications – Changes made to standards and/or assessment in order to meet the needs of diverse learners that alter typical expectations or standards for the class. Modifications are made when expectations go beyond ability level of student.

National Standards – Often used in K-12 content areas because of the complexity in teaching multiple grade levels.

Pre-Assessment – Administered prior to teaching in order to measure students' prior knowledge of content. Data should be used to plan instruction and measure individual needs.

Post-Assessment – Often referred to as "summative assessment." Provides information regarding students' understanding of unit goals after unit is taught.

Rationale – Reason behind decisions made; should be convincing and related to contextual factors, application to real life, and/or educational research.

Real-life Application – How content can be related to everyday life for students.

State Content Standards – Although based upon national standards, state standards are specific to each state. These are used in the core academic areas of English Language Arts, Mathematics, Science, and Social Studies in grades kindergarten through 12.

Teacher Work Sample Rubric

D1 Rubric:

Teacher Candidate's Name: _____

Instructor: _____

Dimensions	**Exemplary**	**Acceptable**	**Unacceptable**
1. Contextual Factors **Grades are calculated using the following point scale:** **E= 12- 14 pts** **A= 7- 11 pts** **U= 0- 6 pts** ***Aligned with:*** APS 1.A APS 2.A	**2 points per element**	**1 point per element**	**0 points per element**
	Comprehensive description of the relevant and current characteristics of the **school**	General comprehensive description of the relevant and current characteristics of the **school**.	Minimal description of the relevant and current characteristics of the **school**
	Comprehensive description of resources available in the school and community relevant to students in instruction	General comprehensive description of resources available in the school and community relevant to students in instruction	Minimal or no description of resources available in the school and community relevant to students in instruction
	Contextual Factors Table with all required elements.	Contextual Factors Table with most required elements.	Incomplete or no Contextual Factors Table
	Comprehensive description of environmental and physical demands of the **classroom** that may affect learning	General description of environmental and physical demands of the **classroom** that may affect learning.	Minimal description of environmental and/or physical demands of the **classroom** that may affect learning
	Comprehensive description of specific relevant **student** characteristics based on contextual factors' data.	General description of specific relevant **student** characteristics based on contextual factors' data	Minimal or no description of specific and relevant **student** characteristics is provided.

	Comprehensive description of general strategies for unit instruction and assessment based on contextual factors.	General description of general strategies for unit instruction and assessment based on contextual factors	Minimal description of general and strategies for instruction and assessment based on contextual factors.
	Demonstrates mastery of English language usage and writing skills with no mechanical errors. All sources cited in the narrative are referenced. References are correctly cited using APA.	Demonstrates mastery of English language usage and writing skills with few mechanical errors. Most sources cited in the narrative are referenced. References are correctly cited using APA.	Errors in English language usage and writing skills interfere with readability. Few or no sources cited in the narrative are referenced. References are not cited using APA.

D2 Rubric:

Teacher Candidate's Name: _____

Instructor: _____

Dimension	**Exemplary**	**Acceptable**	**Unacceptable**
	2 points per element	**1 point per element**	**0 points per element**
2. Unit goals **Grades are figured using the following point scale:** **E= 7- 8 pts** **A= 4- 6 pts**	Unit goal(s) is/are aligned with state and/or national standards and reflect all of the big ideas of the unit.	Unit goal(s) is/are aligned with state and/or national standards and reflects some of the big ideas of the unit.	Unit goal(s) is/are unclear and is/are not properly aligned with appropriate state and/or national standards.
	Unit goal(s) is/are measurable, challenging, and appropriate.	Unit goal(s) is/are measurable. Unit goal(s) is/are somewhat challenging and appropriate.	Unit goal(s) is/are not measurable, challenging and/or appropriate.

U= 0- 3 pts **Aligned with:** APS 2.A	Compelling rationale for unit content beyond inclusion in standards.	Adequate rationale for unit content beyond inclusion in standards.	Vague rationale for unit content.
	Demonstrates mastery of English language usage and writing skills with no mechanical errors.	Demonstrates mastery of English language usage and writing skills with few mechanical errors.	Errors in English language usage and writing skills interfere with readability.

D3 Rubric:

Teacher Candidate's Name: _____

Instructor: _____

Dimension	**Exemplary**	**Acceptable**	**Unacceptable**
	2 points per element	**1 point per element**	**0 points per element**
3. Assessment plan and results **Grades are figured using the following point scale:** **E= 13-16 pts** **A= 8- 12 pts** **U= 0- 7 pts** ***Aligned with:*** APS 2.C APS 3.A APS 3.B	Content of pre-assessment targets highest priority elements of the unit goal(s). If appropriate, alternative pre-assessment and/or administration is addressed. Each item/element is labeled by unit goal and point value.	Minor changes to the pre-assessment needed to address high priority content. If appropriate, alternative pre-assessment and/or administration is addressed. Most items/elements are labeled by unit goal and point value	Significant changes to the pre-assessment needed to address content. If appropriate, alternative pre-assessment and/or administration is needed, but not addressed. Items/elements are not labeled by unit goal and/or point value
	Items (or elements) for unit goal(s) in pre-assessment are brief; they address Excellent range of knowledge and skills from basic to challenging	Items (or elements) for unit goal(s) in pre-assessment need minor modifications; **or** range of knowledge and skills needs expanding	Items (or elements) for unit goal(s) in pre-assessment need significant modifications **and** range of knowledge and skills need significant expansion

	Scoring method for pre-assessment is quick, easy, and yields organized, meaningful information. Mastery level specified. Directions included. Scoring instrument(s) is/are included	Scoring method for pre-assessment is too time-consuming **or** yields confusing information. Mastery level vague. Directions included. Scoring instrument(s) is/are included	Scoring method for pre-assessment is too time-consuming **and** yields confusing information. No mastery level included. No directions included. Scoring instrument(s) is/are not included.
	Appropriately labeled table includes all required elements for this dimension. Correct computation of averages.	Appropriately labeled table includes all required elements for this dimension. Minor problems with computation of averages.	Inappropriately labeled table with some required elements missing. Incorrect computation of averages (NCTM 3c).
	Significant patterns accurately analyzed and described based upon both pre-assessment data and contextual factors	Patterns generally analyzed and described based upon pre-assessment data or contextual factors.	Patterns vaguely described but are not based upon pre-assessment data or contextual factors.
	Specific instructional decisions linked to analysis.	Instructional decisions linked to analysis, but lack specificity.	Instructional decisions are generic.
	Overview of assessment plan contains unit goal(s) that is/are assessed before, during, and after instruction with multiple types of assessment.	Overview of assessment plan contains unit goal(s) that is/are assessed before, during, and after instruction.	Overview of assessment plan does not assess unit goal(s) before, during, and after instruction.

	Demonstrates mastery of English language usage and writing skills with no mechanical errors.	Demonstrates mastery of English language usage and writing skills with few mechanical errors.	Errors in English language usage and writing skills interfere with readability.

D4 Rubric:

Teacher Candidate's Name: _____

Instructor: _____

Dimensions	**Exemplary**	**Acceptable**	**Unacceptable**
	2 points per element	**1 point per element**	**0 points per element**
4. Detailed lesson plans and reflections **Grades are figured using the following point scale:** **E= 15- 18 pts** **A= 9- 14 pts** **U=0- 8 pts** ***Aligned with:*** *APS 2.B* *APS 5.A* *APS 5.B* *APS 7.A*	Well-developed table of lessons, with all components, and compelling rationale for selecting the lessons (if applicable).	Table of lessons, with all components, and rationale for selecting the lessons (if applicable).	Missing components in the table of lessons and/or missing rationale for selecting the lessons (if applicable).
	All state standards and/or specific learning objectives aligned with assessments. All assessments listed and attached.	State standards and/or specific learning objectives generally aligned with assessments. All assessments listed and are attached.	State standards and/or specific learning objectives are not aligned with assessments. Assessments not listed and/or not attached.
	Lessons show Excel®lent rationale/relevance to the unit goal(s).	Lessons show general rationale/relevance to the unit goal(s).	Lessons show little or no rationale/relevance to the unit goal(s).
	All needed materials listed. Procedures logical, in detail, and clearly written.	Most needed materials are listed. Most procedures logical, in some detail, and adequately written.	Few or no needed materials are listed. Procedures are illogical, lack detail, and/or vaguely written.

APS 7.B	Interventions related closely to individual student needs as outlined in Contextual Factors and specific to the individual lesson plans.	Most interventions related to individual student needs as outlined in Contextual Factors and most are specific to the individual lesson plans.	Little or no interventions related to individual student needs as outlined in Contextual Factors and few or none are specific to the individual lesson plans.
	Complete description of the use of technology in at least one lesson.	General description of the use of technology in at least one lesson.	Vague or missing description of the use of technology in at least one lesson.
	Reflections accurately use student assessment data to summarize and analyze student performance.	Most reflections accurately use student data to summarize and analyze student performance.	Reflections vaguely and/or inaccurately and/or do not use student data to summarize and analyze student performance.
	Reflections suggest specific changes to increase student learning through accommodations/modifications/ extensions.	Reflections suggest general changes to increase student learning through accommodations/modifications/extensions.	Reflections vaguely suggest or do not address changes to increase learning through accommodations/modifications /extensions.
	Demonstrates mastery of English language usage and writing skills with no mechanical errors.	Demonstrates mastery of English language usage and writing skills with few mechanical errors.	Errors in English language usage and writing skills interfere with readability.

D5 Rubric:

Teacher Candidate's Name: _____

Instructor: _____

Dimension	Exemplary	Acceptable	Unacceptable
	2 points per element	**1 point per element**	**0 points per element**
5. Post-assessment plans and results **Grades are figured using the following point scale:** **E= 19-24 pts** **A= 12- 18 pts** **U= 0- 11 pts** ***Aligned with:*** ***APS 3.C***	Post- assessment is attached and all items aligned with unit goal (s).	Post-assessment is attached and most items aligned with unit goal(s).	Post-assessment not attached or some post-assessment items lack alignment.
	Scoring and criteria for mastery clearly explained. All scoring instruments included.	Scoring and criteria for mastery lack specificity. All scoring instruments included.	Scoring and explanation of criteria for mastery are not identified or are inappropriate. Some scoring instruments included.
	Logical and complete rationale for relationship to pre-assessment.	Vague but plausible rationale for relationship to pre-assessment.	Rationale for relationship to pre-assessment is missing.
	Appropriately labeled table includes all required elements for this dimension. Correct computation of data.	Table includes most required elements for this dimension. Computation of data with minor errors.	Inappropriately labeled tables with some required elements missing. Incorrect computation of data.
	Prompt 1: Specific analysis of overall student learning of the entire unit which thoroughly references data to support conclusions.	**Prompt 1:** General analysis of student learning of the entire unit which references some data to support conclusions.	**Prompt 1:** Superficial analysis of overall student learning of the entire unit which thoroughly references data to support conclusions.
	Prompt 2: Detailed description of unit goal/ lesson objective on which students did well. Thoughtful analysis of why these results occurred.	**Prompt 2:** General description of unit goal/lesson objective on which students did well. Some analysis of why these results occurred.	**Prompt 2:** Superficial description of unit goal/lesson objective on which students did well. Little or no analysis of why these results occurred.

	Prompt 3: Detailed description of unit goal/lesson objective on which students did poorly. Thoughtful analysis of why these results occurred.	**Prompt 3:** General description of unit goal/lesson objective on which students did poorly. Some analysis of why these results occurred.	**Prompt 3:** Superficial description of unit goal/lesson objective on which students did poorly. Little or no analysis of why these results occurred.
	Prompt 4: Detailed description of instructional changes needed to ensure mastery by all students on the most difficult goal/lesson objective.	**Prompt 4:** General description of instructional changes needed to ensure mastery by all students on the most difficult goal/lesson objective.	**Prompt 4:** Superficial description of instructional changes needed to ensure mastery by all students on the most difficult goal/lesson objective.
	Prompt 5: Excel® data table sorted by either mastery or gains and displayed correctly. Detailed discussion of individual students who did not meet mastery or who made significant or minimal gains.	**Prompt 5:** Excel® data table sorted by either mastery or gains and displayed correctly. Some discussion of individual students who did not meet mastery or who made significant or minimal gains.	**Prompt 5:** Excel® data table not sorted by either mastery and/or gains or displayed incorrectly. Little or no discussion of individual students who did not meet mastery or who made significant or minimal gains.
	Prompt 6: Detailed description of interventions (accommodations/modifications/extensions) including those described in D.1. Specific explanations of which were most effective and least effective on individual student learning.	**Prompt 6:** General description of interventions (accommodations/modifications/extensions) including those described in D.1. Some explanation of which were most effective and least effective on individual student learning.	**Prompt 6:** Superficial description of interventions (accommodations/modifications/extensions) including those described in D.1. Little or no explanation of which were most effective and least effective on individual student learning.

	Prompt 7 Complete lists of use of multiple types of instructional technology by both teacher and students. Thoughtful reflection on benefits and/or drawbacks of technology chosen.	**Prompt 7**: General lists of use of instructional technology by teacher and/or students. Some reflection on benefits and/or drawbacks of technology chosen.	**Prompt 7**: Incomplete lists or limited use of instructional technology by teacher and/or students. Little or no reflection noted on benefits and/or drawbacks of technology chosen.
	Demonstrates mastery of English language usage and writing skills with no mechanical errors.	Demonstrates mastery of English language usage and writing skills with few mechanical errors.	Errors in English language usage and writing skills interfere with readability.

g. NA

Assessment 6: Technology

(1)

a. Description of Assessment

Students will create an original interactive whiteboard lesson including video clip based on (at least) 2 MCTM standards.

b. Alignment between NCTM Standards and Assessment 6

Topic Addressed by Assessment 6	NCTM Standard and Indicators
4. Mathematical Learning Environment	4e
5. Impact on Student Learning	5b
6. Professional Knowledge and Skills	6c

c. NA

d. NA

(2) Documentation

e. EDCI B243: Technology Resources for Teaching- Final Assignment: Original Interactive Whiteboard lesson with Video Clip

Students must choose between Smart or Promethean software (both have been taught in class) and create a minimum 4 slide presentation.

Slide 1: Title, name, date

Slide 2: Standards addressed (2 only)

Slide 3: Streamline video clip inserted

Slide 4: Assessment of concept taught in video

There should be colorful backgrounds, graphics, animations, and the video must correctly teach the concept of the standards. The student will present it to the class, with a small group of students acting as mock secondary level mathematics students. The creation, presentation, and assessment of the lesson will be assessed based on the rubric below.

f. Scoring Rubric

	Exceeds Expectations (4 pts)	**Meets Expectations (3 pts)**	**Developing (1 pt)**	**Does not meet (0 pt)**
DESIGN: All characters are correctly typed. There are no spelling, spacing, or grammar errors. Capitalization is appropriate (1.000, 10%)	No spelling, grammar, spacing or capitalization errors are evident. Interactive features included in assessment page. Colorful graphics and backgrounds are used. Animations are inserted.	One to three problems with either grammar or spelling. Spacing is not consistent with examples provided. Capitalization used inappropriately. Graphics, text and backgrounds are acceptable, but not engaging. No animations.	Four to six errors present. Spacing is not consistent with proper sentence structure. Text is written in all capitals without need. Little or no use of graphics. No animations.	More than seven spelling, spacing, grammar and capitalization errors. Little or no effort to use color, graphics, or engaging text.

CONTENT: Candidate selects subject and researches and cites material. Appropriate, words describe the subject or concept of element that is being taught. Lesson plan framework used (5.000, 50%)	Candidate follows the directions of the assignment, and downloads a short video clip (less than 5 minutes) that clearly illustrates an NCTM standard. Candidate illustrates the presentation with appropriate graphics. The standard is given, then re-stated so that students can understand what is being taught. Candidate uses an opening slide, has good, flowing organization to material presented. The last slide assesses the concept being taught.	Candidate follows some of the directions given in class, but not all. The video clip chosen is not an appropriate one to illustrate the standard. Candidate uses few or inappropriate graphics to illustrate the presentation. The standard is given, but not re-stated for the mock students. Candidate uses no opening slide, has a limited vocabulary, and lack smoothness in the organization of material presented.	Candidate does not follow directions as to length or topic. The standard is not indicated, or does not relate at all to the video. Candidate creates an Interactive Whiteboard presentation of less than 4 slides to present material. Candidate uses little or no or inappropriate graphics to illustrate the presentation. Candidate demonstrates a poor vocabulary, and lack of organization of material presented.	Candidate does not produce an interactive whiteboard lesson with the content assigned.
PRESENTATION: Candidate teaches class on subject using Interactive whiteboard consisting of at least 4 slides. (3.000, 30%)	Candidate does not read from slides. Candidate shows confidence in using board to advance presentation. Candidate completes presentation of at least 4 slides with conclusion and opportunity for questions.	Candidate reads from at least half the slides. Candidate shows little confidence in using board to advance presentation. Candidate completes presentation of 4-10 slides with poor conclusion and/or no opportunity for questions.	Candidate reads from most of the slides. Candidate shows no confidence in using the board to advance presentation. Candidate completes presentation of less than 4 slides with no conclusion or opportunity for questions.	Candidate does not present to the class.

ASSESSMENT: The final slide consists of some type of interactive assessment for the concept taught. (1.000, 10%)	Candidate creates an engaging, creative assessment that is student-centered, and accurately assesses concepts taught in the video.	Candidate creates an assessment for the final slide that is somewhat engaging, but does not fully assess the desired concept.	Candidate does not create an interactive assessment and concept covered is not accurately or thoroughly measured.	There is no assessment slide.

g. NA

Assessment 7: History and Development of Mathematical Thought

(1)
a. Description
In this assessment students research and present the chronological development of specific content areas (Number & Operation, Algebra & Trig, Geometry & Measurement, Data Analysis, Statistics & Probability, Discrete Mathematics, Calculus) in mathematics emphasizing significant developments and diverse cultures/mathematicians contributing to each field. The purpose of this assignment is for students to select and describe what they consider to be three significant steps/events/contributions in the historical development of each of the above content areas. This assessment specifically addresses the candidate's knowledge of the historical development of the mathematical content areas as well as cultural contributions.

b. Alignment between NCTM Standards and Assessment 7

Topic Addressed by Assessment 7	NCTM Standard and Indicators
1. Content Knowledge	1 a (1.2,1.5,2.7,3.10,4.6,5.6,6.5)
2. Mathematical Practices	2 a,b,d,e,f
4. Mathematical Learning Environment	4 c,e

c. NA

d. NA

(2) Documentation

e. Historical Development Assignment- Detailed description

A major objective of MATH B360 is for students to understand the development of mathematical thought and major historical accomplishments in the content areas of:
(1) Number & Operation
(2) Algebra & Trigonometry
(3) Geometry & Measurement
(4) Data Analysis, Statistics & Probability
(5) Discrete Mathematics
(6) Calculus.

Learning Outcomes for the course include:

- Students will understand the chronology of mathematics, beginning with the origin of mathematics in the civilizations of antiquity and continuing until the present day.
- Students will gain knowledge of the major accomplishments of mathematics (including discoveries and proofs) as well as knowledge of the people who made the accomplishments and the conditions under which they did so.

The Historical Development Assignment includes students selecting and describing what they consider to be three significant steps/events/contributions in the historical development of each of the above content areas.

For each of the three significant steps/events/contributions chosen, the following are to be addressed:

1. What? (Description of the step/event/contribution)
2. Who? (Specific individuals or cultures involved in the development)
3. Where? (Location(s))
4. When?
5. How did this affect/improve/change the mathematics of the time?
6. Why do you consider this to be one of the most significant steps in the development of this content area?

f. Scoring Rubric:
For each content area above, the scoring rubric will be used to evaluate the student's presentation/description.

	4 pts	**2-3 pts**	**1 pt**	**0 pts**
What/who/where/ when Description	Thorough and accurate description of the event(s) that included all pertinent information, including contributions from diverse cultures.	Partial description of the event(s) that included most of the pertinent information.	Weak or inaccurate description of the event(s) that was missing much of the pertinent information.	Not included.
Effect on Mathematics of the Time	Response indicated a full understanding of the event(s) and how it impacted the mathematics of the time.	Response indicated a partial understanding of the event(s) and how it impacted the mathematics of the time.	Response indicated a weak understanding of the event(s) and how it impacted the mathematics of the time.	Not included.

Significance	Response indicated a full understanding of the historical significance of the event.	Response indicated a partial understanding of the historical significance of the event.	Response indicated a weak understanding of the historical significance of the event.	Not included.

g. NA

Assessment 8: Interdisciplinary Training Project

(1) a. Description

The Final Project Presentation will be completed as part of the required course MATH/CSCI 419: Mathematical Modeling for Mathematics majors in the Secondary Mathematics Certification track. The objectives of mathematical modeling are to describe key characteristics of real world phenomena and study their interaction and dynamics, using tractable mathematical formulations. The theoretical and numerical analysis of mathematical models provides insight and precision to understand underlying mechanisms of a phenomenon.

This course is designed to introduce the teaching candidates to the mathematical models, analysis and computational methods to study complex systems in science and/or engineering. This course utilizes graphical, numerical, and mathematical analysis techniques to describe and investigate experimental data and complex systems in science and/or engineering. Emphasis is on the advanced mathematical modeling techniques and computer programming to explore applied problems as part of a collaborative effort.

Learning about mathematical modeling is an important training to an application-oriented mathematical and computational expertise, and prepares the student capable of mastering the challenges of our modern interdisciplinary world. For instance, the course may include mathematical modeling of the infectious diseases, which remain a leading cause of morbidity and mortality worldwide. Mathematical models are used to illustrate the transmission of the disease and to evaluate the potential impact of the control strategies. In particular, mathematical models have made considerable contributions to our understanding of the HIV infection, immune responses, and antiretroviral treatment. Moreover, modeling was utilized in the recent swine flu pandemic (H1N1) to monitor the spread of infection and the potential impact of control strategies, such as school closures and vaccination.

Students who complete the course with a grade of C or better should be able to:

a) Use the principles and methods of mathematical modeling for studies of complex systems in
b) science and/or engineering

c) Develop mathematical models from real-world descriptions of problems
d) Apply various mathematical and numerical techniques to analyze the models
e) Interpret the results obtained from mathematical analysis and numerical simulations and relate them to real-world implications
f) Collect and understand journal articles to study a particular question
g) Develop their intuition and scientific outlook

h) Use LaTeX - the universal software for typesetting mathematics
i) Use a computer software, such as MAPLE® and/or MATLAB®, for symbolic computation and plotting

b. Alignment between NCTM Standards and Assessment 8

Topic Addressed by Assessment 8	NCTM Standard and Indicators
2. Mathematical Practices	2 a,c,d,e,f
4. Mathematical Learning Environment	4e

c. NA

d. NA

(2) Documentation
e. Detailed Description
Significant Course Components:
A. HOMEWORK & SCENTIFIC ARTICLE DISCUSSIONS
1. Homework will assigned and no late homework will be accepted
2. Instructor will also assign journal article readings. Students will read the articles prior to the scheduled meeting times
3. During the class meetings students will engage in the article discussions, ask questions, and talk about possible model extensions

B. MIDTERM EXAM
1. One closed-book in class midterm exam is based on theoretical materials covered in class
2. Exam is given at the beginning of class. If you have a documented accident or emergency that prevents you from taking a test, you must notify me BEFORE class and the missed exam can be rescheduled for a specific date by an instructor
3. Disputed problems on an exam must be discussed with me on the day exam is returned
4. Any indication of cheating on an exam will result in an automatic zero for that grade. In addition, all students involved will be reported to the proper USCB authority

C. FINAL PROJECT PRESENATION (Key Assessment 8)
1. Each group consists of 2 to 3 students. The topic of the project will be chosen by students or assigned by the instructor.

2. Each group need submit a written report in the form of a scientific research paper

3. and give a presentation (20 minutes per person presentation + 5 minutes for questions). Each student will be graded individually based on their presentation according to the rubric below.

4. All members of each group should participate equally.

5. The report/presentation should include: background of the studied system, motivation of the study, model formulation, analytical results of the model, numerical simulations of the model, biological/medical/engineering implications, and possible model extensions.

f. Scoring Procedure

GRADING PROCEDURE
Your final grade will be calculated from the following:

A. Homework and scientific articles discussions 35% of the final grade
B. Midterm exam 30% of the final grade
C. Final Project Presentation 35% of the final grade (scored according to the rubric below)

INDIVIDUAL SCORING RUBRIC FOR THE FINAL PROJECT PRESENATION

Criteria	**Excellent (20 points)**	**Good (15 points)**	**Needs improvement (5 points)**	**Missing (0 points)**
Presentation Style	Clear, persuasive, logical and well organized with little to no errors	Good overall; minor issues with clarity, logic, or level of detail; few errors	Poorly presented. overall confusing, lacking necessary details; excessive or significant errors	Unprepared in all aspects
Introduction/ Background	Clearly articulated why this project is important and gave detailed background information	Good effort to describe project's importance /background; could be stated more clearly	Little to no introduction /background or not-understandable	No introduction
Materials and Methods	Clearly explained the model and its underlying assumptions	Good effort to explain the model and its underlying assumptions	Little to no explanation of the model and its underlying assumptions	No explanation of the model
Results and Conclusion	Gave precise results and derived conclusions from understanding from modeling.	Gave some of the results and derived conclusions from understanding from modeling.	Gave vague description of results and conclusions	No results and no conclusions
Presentation Time-Management	Strong evidence of thought or presentation time-management planning	Good evidence of thought or presentation time-management planning	Little evidence of thought or presentation time-management planning	No evidence of planning

g. NA

SECTION V - USE OF ASSESSMENT RESULTS TO IMPROVE PROGRAM

This section is not applicable for program consideration.

SECTION VI - FOR REVISED REPORTS OR RESPONSE TO CONDITIONS REPORTS ONLY

This section is not applicable for program consideration.

End.

New Program Proposal
Bachelor of Science in Industrial Process Engineering
University of South Carolina Aiken

Summary

The University of South Carolina Aiken requests approval to offer a program leading to the Bachelor of Science in Industrial Process Engineering to be implemented in Fall 2015. The proposed program is to be offered through traditional instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	5/15/14	Not Applicable
Program Planning Summary considered by ACAP through electronic review	7/30/14	ACAP members expressed support for the proposed program. Dr. W. Franklin Evans, from South Carolina State University (SCSU) noted that SCSU also plans to offer a B.S. in Industrial Engineering, but that there are sufficient job opportunities for graduates of both programs. Staff encouraged the institutions to collaborate.
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	Dr. Jeffrey Priest and Dr. Evans described the ways in which their institutions' faculty might collaborate such as sharing courses and working on joint projects. ACAP members voted to approve the program.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested that the proposal be revised to include information about potential collaboration, more detail in the course descriptions, a statement about possible articulation agreements with the technical colleges, and a description of the other funding identified in the Sources of Financing chart.
Revised Program Proposal Received	11/25/14	The revised proposal satisfactorily addressed all of the requested revisions.
CAAL Consideration	1/8/2015	Commissioners discussed and agreed there was a need for the proposed program. Commissioners also commended the University for its strong collaboration with the business community in developing the proposed program.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program leading to the Bachelor of Science in Industrial Process Engineering to be implemented in Fall 2015.

1. **COVER PAGE**

a) Name of Institution - University of South Carolina Aiken

b) Name of Degree – Industrial Process Engineering

c) Date of Submission – September 15, 2014

d) Institutional Signatures

Harris Pastides, President	Date
Sandra Jordan, Chancellor	Date

e) Contact – Dr. Jeffrey M. Priest
Executive Vice Chancellor for Academic Affairs
University of South Carolina Aiken
471 University Parkway
Aiken, SC 29801
803-641-3755
jeffp@usca.edu

2. CLASSIFICATION

a) Program Title – Bachelor of Science in Industrial Process Engineering
b) Concentrations/Options/Tracks – None
c) Academic Unit in which the program resides – Department of Mathematical Sciences
d) Designation, Type, and Level of Degree – 4-year, Baccalaureate
e) Proposed Date of Implementation – Fall 2015
f) CIP Code – 14.3501
g) Site – University of South Carolina Aiken
h) Program Qualifications – Qualifies for supplemental Fellows Scholarship and Life Scholarship
i) Delivery Mode – Traditional
j) Area of Certification – Not Applicable

3. INSTITUTIONAL APPROVAL

USCA Monday Group: September 25, 2013
USCA Department of Mathematical Sciences: January 13, 2014
USCA Academic Council: March 4, 2014
USCA University Planning Committee: March 17, 2014
USCA Courses and Curricula Committee: March 17, 2014
USCA Faculty Assembly: April 2, 2014
USCA Chancellor: April 2, 2014
USC System Provost: February 27, 2014
USC System President: March 3, 2014
USC System Academic Affairs and Faculty Liaison Committee: March 28, 2014
USC System Board of Trustees: April 25, 2014

4. PURPOSE

a) Purpose

Over the past several years Aiken County has developed into a technology center for business and government. The listing of businesses in the area that depend on technology include Savannah River National Laboratory, Savannah River Nuclear Solutions, Savannah River Remediation, Tognum America Inc., BAE Systems, South Carolina Gas and Electric; Kimberly-Clark's Consumer Health Services; Bridgestone Passenger and Truck Tire Facility; AGY Materials Corporation; Shaw Industries; Washington Safety Management Solutions Corporation; Hubbell Power Systems; and Harvey Ignition Systems Engineering Corporation. Collectively these industries employ over 16,000 individuals and each industry is driven by its technology innovations, which come from the employment of its engineering and scientific staff.

In fall 2012, the University of South Carolina Aiken (USCA) conducted a visioning process that involved over 700 stakeholders in the region. The purpose of the visioning process was to get input from stakeholders on what USCA does well, where it can improve, and where it should go in the future. Through the visioning process seven themes occurred: grow the university, increase program/degree offerings, increase faculty/staff salaries, market the university more widely, improve the current funding/budget situation, improve community relations/increase partnerships, and revamp the current administrative/governance structure. Within each of these themes, numerous recommendations were made. For the increase program/degree

offerings theme, an undergraduate engineering program was the top recommendation for every constituent group (students, faculty, administrators, business/industry, community leaders).

As a result, an engineering advisory group made up of engineer leaders in businesses such as Savannah River National Laboratory, Savannah River Nuclear Solutions, Savannah River Remediation, BAE Systems, Kimberly-Clark, Tognum America Inc., URS, and Bridgestone was formed. During the 2012-2013 academic school year, this group aided in the development of the proposed baccalaureate industrial process engineering program. The charge assigned to this group was to help develop a program whose graduates they would want to hire for their businesses. The result was the development of the Industrial Process Engineering Program with a mission to prepare engineering students who have the technical knowledge and skills in mathematics, science, engineering and management to analyze and solve problems in today's team oriented business environment. Through a rigorous curriculum students will be provided multiple opportunities to apply knowledge and skills learned in the classroom and laboratory in real world settings.

This same committee also suggested the name of the degree. They felt it was important for the title to describe not only the course topics but the career destinations of our graduates. The industrial process engineers will be prepared to oversee, develop, enhance, and design processes found in industry relating to people, products, economics, and knowledge. The title for our degree indicates learning to achieve knowledge in the processes of industry from multiple viewpoints: mechanical, manufacturing, and business.

b) Objectives

The goals for developing the Industrial Process Engineering Program are:

1. Provide an opportunity for local high school students and technical college students to participate in a local 4-year engineering program.
2. Address a need as identified by local businesses and industries.
3. Aid the economic development of the CSRA by providing a program that can help attract and retain industries and engineers.

Program educational objectives:

1. Provide students with the technical knowledge and skills in mathematics, science, and engineering to analyze and solve problems.
2. Provide engineering students with a strong liberal arts background.
3. Provide students with practical experience and organizational skills, enabling them to interact and communicate both orally and in writing to others.
4. Provide students with the skills to work effectively in cross-functional team environments.

Long-term program objectives: Within 3-5 years of graduation, graduates of this program will have:

1. Attained positions that utilize the skills learned in this program.
2. Roles of increasing responsibility leading to leadership positions.
3. Pursued professional development, certifications, and/or licenses in engineering or related areas by attending graduate school or continuing education opportunities.
4. Served the profession, community, and society by demonstrating professional and ethical responsibilities.

5. **JUSTIFICATION**

a) Employability of Graduates:

In the fall 2012, USCA hired Carnegie Communications to do a productivity demand study and an environmental scan for a series of possible degree programs, one of which was engineering. According to the study, which drew heavily from the Bureau of Labor Statistics Occupational Employment Statistics Classification system, over the next 10 years, 68,000 new engineering jobs and 38,000 replacement jobs will become available. In the Central Savannah River Area, the Carnegie study indicates that there will be an estimated 333 engineering job openings (114 new, 219 replacement). Potential employers for our graduates will be URS Corporation, Savannah River Remediation, Energy Solutions, BUNTY LLC Engineered Solutions, Savannah River Nuclear Solutions, Southeastern Clay Company, Kimberly Clark, Bridgestone Tire, AGY Materials, Shaw Industries, and Tognum America, to name a few.

A job search conducted on November 8, 2013 through Careerbuilder.com indicates more engineering related job openings as predicted by the Bureau of Labor Statistics. A search on that website yielded the following results:

Job Prompt	CSRA	South Carolina	Georgia	North Carolina
Industrial Engineer	8	181	270	171
Process Engineer	39	415	879	466
Mechanical Engineer	19	211	269	173

b) Centrality with Mission:

USC Aiken was founded in 1961 as a result of the local community coming together to ask the state legislature to approve a degree granting institution to meet the needs of the area. Since it opened its doors, USC Aiken has developed into a comprehensive liberal arts institution committed to active learning through excellence in teaching, faculty and student scholarship, research, creative activities, and service. The University offers degrees in the arts and sciences and in the professional disciplines of business, education, and nursing. All courses of study are grounded in a liberal arts and sciences core curriculum. USCA also encourages interdisciplinary studies and collaborative endeavors. As a community based institution, USCA strives to meet the needs of the community.

Historically, there has been a significant demand for engineering degree opportunities among non-traditional students who are employed in the Central Savannah River Area. Recognizing this demand, USC Aiken has for more than twenty years offered a schedule of engineering courses which includes evening study, however USCA currently offers only freshman- and sophomore-level engineering courses. However, after completion of the courses that are available at the Aiken campus, both non-traditional and traditional students are faced with the need to complete their degree programs through daytime study at USC Columbia or some other institution that has a four year degree, a situation that usually presents the students with unsolvable logistic and financial problems. Traditional and non-traditional students who, due to financial, family, or other circumstances, are unable to relocate also find themselves with no alternative means of earning an engineering degree. We also believe that students educated in Aiken are more likely to stay in Aiken for their career in engineering.

c) Relationship to Related Programs Within the Institution:

As mentioned in the previous section, for the past 20 years, USC Aiken has offered the freshman and sophomore years of a general engineering program that enabled students to transfer to USC Columbia or other engineering programs throughout the state. The proposed program builds on the current program so that students who want to transfer to another institution may continue to do so.

d) List of Similar Programs within South Carolina

Currently Clemson University is the only ABET accredited institution in the state that offers Industrial Engineering. Francis Marion University was just approved for an Industrial Engineering program this past year. Of the two programs, Francis Marion's program is of similar size and scope. However because of the geographic distance between our campuses and the emphasis of regional recruitment, we don't believe we will be in direct competition. There are no other similar programs in the state. A complete listing of the engineering programs as taking from the CHE program inventory are listed in the table below.

Since the submission of this proposal, South Carolina State has submitted a similar program. USC Aiken and South Carolina State has been in discussion on how the two institutions can collaborate. Both institutions agree that similar courses within each program will be accepted by both institutions. Both institutions also agree that, if appropriate, students from each institution can take courses at either institution if course enrollment prevents an institution from offering a course.

Table 1 – Engineering Degrees available in South Carolina as listed in CHE program inventory

	Bob Jones	Clemson	USC Columbia	The Citadel	Claflin	Benedict College	Anderson	Furman	USC Upstate	Francis Marion	South Carolina State
Engineering	x										
Biosystems Engineering		x									
Biomedical Engineering			X								
Chemical Engineering		x	x								
Civil Engineering		x	x	x							
Computer Engineering	x	x	x		x	x					
Broadcast Engineering Management	x										
Electrical Engineering	x	x	x	x							
Engineering Physics						x					
Engineering Science	x										
Environmental Engineering		x									
Materials Science and Engineering		x									
Mechanical Engineering		x	x	x							
Nuclear Engineering											x
Industrial Engineering		x								x	
Pre-Engineering							x	x			
Civil Engineering Technology											x
Electrical Engineering Technology											x

Electrical and Electronic Engineering Technologies											
Industrial Engineering Technology											x
Mechanical Engineering Technology											x
Engineering Technology Management									x		
Engineering Technology										x	
Materials Science and Engineering		x									

e) Similarity and Differences with other programs – Private, SREB ACM, & Proprietary:

A search on the ABET program listing site indicates that there are 97 institutions within the United States that offer Industrial Engineering at the undergraduate level. Clemson is the only institution within South Carolina that is listed. There are two institutions in North Carolina (North Carolina Agricultural and Technical State University and North Carolina State University in Raleigh) and one institution in Georgia (Georgia Institute of Technology).

A search of the Southern Regional Education Board's Academic Common Market yielded no results for industrial engineering.

6. ADMISSION CRITERIA

Admission requirements to the engineering program will be those of entering freshman at USC Aiken. High school course selection, standardized test scores, and an Admissions Index are all used to determine admissibility. In addition to these students must have taken the following in high school: English (4 units), mathematics (4 units), laboratory science (3 units), social science (3 units), foreign language (2 units), academic electives (4 units), and physical education or ROTC (1 unit).

Engineering majors must have a grade of "C" or better in all mathematics, science, and engineering courses. If a student fails to receive a "C" or better, they must repeat the courses until they receive a "C" or better.

7. ENROLLMENT

a) Projected Enrollment

Table A – Projected Total Enrollment

PROJECTED TOTAL ENROLLMENT						
YEAR	**FALL**		**SPRING**		**SUMMER**	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2015-16	90	1575	90	1525	0	0
2016-17	102	1755	102	1705	0	0
2017-18	102	1755	102	1705	0	0
2018-19	102	1755	102	1705	0	0
2019-20	102	1755	102	1705	0	0

b) Origin of Students

Our current pre-engineering program averages 100 students each year. Conservatively, we expect that number to stay consistent. Based on surveying our students, we are making an assumption that approximately 60% of the sophomores will continue with us for their junior year. Then most of those will succeed and continue to the senior year.

Year 1 - 50 freshman, 25 sophomores, 15 juniors (Assumes 15 current sophomores stay with the program)
Year 2 – 50 freshman, 25 sophomores, 15 juniors, 12 seniors
Year 3 – 50 freshman, 25 sophomores, 15 juniors, 12 seniors
Year 4 - 50 freshman, 25 sophomores, 15 juniors, 12 seniors
Year 5 - 50 freshman, 25 sophomores, 15 juniors, 12 seniors

We don't expect many, if any, transfers from other programs on campus.

c) New and Transfer Students

To be conservative, we don't expect an influx of many new or transfer students into the program. There may be a handful, but we are being conservative on the estimates.

8. **CURRICULUM**

a) Sample Curriculum

USC Aiken Proposed Industrial Process Engineering Program of Study

Year 1 (35 Credit Hours)					
Fall			Spring		
ENGL 101	Composition	3	ENGL 102	Composition	3
MATH 141	Calculus I	4	MATH 142	Calculus II	4
ENCP 101	Introduction to Engineering I	3	ENCP 102	Intro to Engineering II	3
CHEM 111	Chemistry I	4	CHEM 112	Chemistry II	4
Elective	Humanities	3	ECON 221/222	Micro or Macro Economics Elective	3
AFCI	Critical Thinking	1			
Total Semester Credit Hours		18	Total Semester Credit Hours		17
Year 1 Summer Internship Opportunity					
Year 2 (34 Credit Hours)					
Fall			Spring		
PHYS 211	Physics I	4	PHYS 212	Physics II	4
MATH 241	Calculus III	4	MATH 242	Calculus IV (Differential Equations)	4
ENCP 200	Statics	3	ENGR 290	Thermodynamics	3
EMCH 371	Engineering Materials	3	ENGR 260	Mechanics of Solids	3
COMM	COMM 201 or 241	3	Elective	Humanities	3
Total Semester Credit Hours		17	Total Semester Credit Hours		17
Year 2 Summer Internship Opportunity					

Year 3 (30 Credit Hours)					
Fall			Spring		
BADM 371	Principles of Management and Leadership	3	ENCP 310	Dynamics (ENCP 210)	3
ELCT 221	Electrical Circuits	3	EMCH 327	Design of Mechanical Elements	3
EMCH 360	Fluid Mechanics	3	ENGR 380	Intro to Systems Engineering	3
ENGR 361	Instrumentation, Measurements, & Statistics	3	ENGR 334	Quality Planning and Control	3
STAT 509	Statistics	3	Elective	History 101 or 102	3
Total Semester Credit Hours		15	Total Semester Credit Hours		15
Year 3 Summer Internship Opportunity					
Year 4 (30 Credit Hours)					
Fall			Spring		
ENGR 498	Capstone Design I	3	ENGR 499	Capstone Design II	3
ENGR 316	Control Systems	3	BADM 494	Project Management	3
Elective	Technical Elective	3	Elective	Technical Elective	3
Elective	Social/ Behavioral Science Elective	3	ENGR 421	Engineering Economics	3
Elective	American Political Institutions Elect.	3	PHIL 325	Engineering Ethics	3
Total Semester Credit Hours		15	Total Semester Credit Hours		15

Technical Elective Courses (6 Credit Hours)					
EMCH 354	Heat Transfer	3	ENGR 477	Advanced Manufacturing	3
ENGR 454	Unit Operations	3	STAT 510	Statistical Quality Assurance	3
EMCH 377	Manufacturing Processes	3	MGMT 475	Production/Operations Management	3

*b) New Courses**

Year 1

ENCP 101 – Introduction to Engineering I
Engineering problem solving using computers and other engineering tools. This course introduces the engineering profession, professional concepts, ethics, and responsibility; reviews the number system and unit conversions; and introduces computer programs. It also prepares students for success through the integration of the following important skills: technical problem solving and engineering design, ethical decision-making, teamwork, and communicating to diverse audiences.
Outcomes:

1. Students will be able to describe the different engineering disciplines, career opportunities in engineering, and the roles engineers perform in society. Students will display proficiency by demonstrating the following competencies:
    a. Define the work of an engineer;
    b. Describe the different types of engineers and identify which types best suit the student's own skill set;
    c. Identify ethical problems facing engineers.
2. Students will be able to work effectively on a team to plan, execute, and apply a structured engineering design process to a project using basic project management techniques. Students will display proficiency by demonstrating the following competencies:
    a. Demonstrate how to use engineering paper, engineering journals/lab books, and the engineering design process to outline a project;
    b. Complete two to three group projects;
    c. Participate in a group presentation demonstrating the completed project;
    d. Complete a peer review on classmates' projects.
3. Students will be able to solve elementary engineering problems using a systematic approach and present these problems and solutions in an effective oral presentation. Students will display proficiency by demonstrating the following competencies:
    a. Perform an individual oral presentation;
    b. Complete formal lab reports;
    c. Use Microsoft Word, Excel, and PowerPoint for labs and presentations;
    d. Demonstrate an understanding various units of measure and an ability to convert between them.
4. Students will be able to identify available resources and opportunities that assist in achieving unique educational and life goals. Students will display proficiency by demonstrating the following competencies:
    a. Identify the skills and attributes needed to successfully complete a degree in engineering;
    b. Identify the college resources available to help them decide on a course of study and a path to success in those courses.

ENCP 102 – Introduction to Engineering II
Principles and practice of visualization and graphical representation using modern computer-aided design software.
Outcomes:

1. Students will demonstrate the ability to model using a 3-dimensional modeling program.
2. The students will demonstrate the ability to make freehand sketches.
3. The students will demonstrate the ability to carry out an engineering project including design, model, analysis, and fabrication of a product.
4. The students will apply a numerical analysis program to structural and heat sink analysis.
5. The students will become familiarized with the manufacturing process.

Topics Covered:

1. Introduction of engineering graphics and 3-Dimensional modeling.
2. Model development using extrude, revolve, sweep, and blend.
3. Adding fillets, rounds, and chambers.
4. Assembly of parts.

5. Heat transfer analysis.
6. Structural analysis.
7. Manufacturing machine code development.

Year 2

ENCP 200 – Statics (pre: MATH 141)
Introduction to the principles of mechanics; equilibrium of particles and rigid bodies; distributed forces, centroids, and centers of gravity; moments of inertia of areas; analysis of simple structures and machines; and friction.
Outcomes:

1. Students will demonstrate the ability to describe position, forces, and moments in terms of vector components in two and three dimensions.
2. Students will demonstrate the ability to select suitable reference coordinate axes, construct free body diagrams, and understand the relation between constraints imposed by supports and support forces.
3. Students will demonstrate the ability to formulate static equilibrium equations for a rigid body and evaluate member forces in trusses, frames, and machines.
4. Students will demonstrate the ability to apply Coulomb's dry friction laws to engineering problems.

Topics Covered:

1. Introduction
2. Forces and particle equilibrium
3. Moment of a force; resultants
4. Cross products
5. Moments, couples, moments about a line
6. Equivalent systems
7. Distributed loading
8. Analysis of general equilibrium problems
9. Free-body diagrams
10. Fundamental application of equilibrium equations
11. Interacting bodies or parts of a structure
12. Structural applications
13. Plane trusses
14. Space trusses
15. Systems containing multiforce members
16. Friction

ENCP 260 – Introduction to the Mechanics of Solids (pre: MATH 241, ENCP 200 with a C or better)
developments for stresses. Tension, torsion, axial load, and pressure. Deformations of elastic relationships between stress and strain.
Outcomes:

1. Students will demonstrate understanding of the basic concepts of stress and strain at a point.
2. Students will demonstrate the ability to apply stress and strain transformations at points.
3. Students will demonstrate the ability to understand and use basic equations for stress in simple components subjected to axial loading, torsional loading or cylindrical shafts, bending of bars, shear in bars, and internal pressure applied to thin walled structures.

4. Students will demonstrate the ability to understand and use the elastic relationship between stress and strain at a point.
5. Students will demonstrate the ability to solve simple statically indeterminate problems for axial loading, torsional loading, and bending of bars.

Topics Covered:
1. Concepts of stress
2. Stress and strain relations
3. Torsion
4. Bending
5. Analysis and design of beams for bending
6. Shear stresses in beams and thin-walled members
7. Transformation of stress and strain
8. Deflection beams
9. Buckling of columns

ENCP 290 – Thermodynamic Fundamentals
Definitions, work, heat, and energy. First law analyses of systems and control volumes. Second law analysis and design.
Outcomes:
1. Students will demonstrate the ability to determine the thermodynamic properties of simple compressible substances.
2. Students will demonstrate an understanding of the concepts of conservation of mass, conservation of energy and the second law of thermodynamics.
3. Students will demonstrate the ability to perform availability analysis for closed systems and control volumes.
4. Students will demonstrate the understanding of concepts of irreversibility, isentropic efficiencies and effectiveness and the application of these concepts in solving thermodynamic problems.

Topics Covered:
1. Definitions: thermodynamic systems, properties, state, process, equilibrium, pressure, temperature and specific volume. Units.
2. Energy concept: kinetic, potential, and internal. Energy transfer by heat and by work.
3. First Law for closed systems. Energy analysis of cycles.
4. Properties of simple compressible pure substances. Incompressible substances. Steam tables, quality. Gas tables.
5. First law for control volumes.
6. Second law and entropy. Kelvin-Planck and Clausius statements. Kelvin temperature scale. Carnot cycle.
7. Second law analysis of closed systems and control volumes. Irreversibility.
8. Availability analysis for closed systems and for control volumes

EMCH 371 – Engineering Materials* (pre: ENCP 260)
Structures and properties of engineering metals, ceramics, and polymers; atomic bonding, crystalline structures and microstructures; mechanical behavior and deformation mechanisms; processes for controlling structures and properties; corrosion.
Outcomes:
1. Students will demonstrate an understanding of the nature of bonding in solids and how the bonding relates to the macroscopic behavior.
2. Students will demonstrate a rudimentary knowledge of how materials can be “engineered” through alloying, heat treatment, or other types of processing to produce desired properties.

3. Students will demonstrate an understanding of how materials selection is critical to optimization of a device or structure.
4. Students will demonstrate an understanding of the basic experimental techniques used in materials characterization

Topics Covered:
1. Primary and secondary bonding
2. Arrangement of atoms in solids
3. Elastic moduli
4. Stress/strain behavior of ductile materials
5. Fracture and fracture toughness
6. Time dependent phenomena
7. Phase diagrams: thermodynamics
8. Heat treatment: kinetics
9. Corrosion/oxidation/abrasion/wear

Year 3

ELCT 221 – Circuits (pre: MATH 142)
Linear circuit analysis and design.
Outcomes:
1. Students will reliably demonstrate the knowledge of Kirchhoff's Current and Voltage Laws (KCL and KVL)
2. Students will reliably demonstrate the ability to solve DC circuits using nodal and mesh analysis and Thevenin and Norton transformations.
3. Students will reliably demonstrate the ability to find the complex impedances of network components.
4. Students will reliably demonstrate the ability to solve AC circuits using the complex forms of KCL, KVL, nodal and mesh analysis as well as Thevenin and Norton transformations.
5. Students will demonstrate the ability to using PSPICE and MATLAB for DC and AC circuit analysis.

Topics Covered:
1. Circuit variables and elements
2. Simple resistive circuits
3. Techniques of circuit analysis
4. Operational amplifier
5. Inductance, capacitance, and mutual inductance
6. Response of first-order RL and RC circuits
7. Response of second order RLC circuits
8. Sinusoidal Steady-state analysis
9. Sinusoidal Steady-state power calculations

EMCH 327 – Design of Mechanical Elements* (pre: ENCP 260)
Design against static failure and fatigue failure of structural members and machine parts: design and selection of components including fasteners, welds, shafts, springs, gears, bearings, and chain drives.
Outcomes:
1. Students will demonstrate the ability to formulate stress analysis problems in multidimensions and to estimate principal stresses.
2. Students will demonstrate the ability to apply multi-dimensional static failure criteria in the analysis and design of mechanical components.

3. Students will demonstrate the ability to apply stress-life fatigue failure criteria in the analysis and design of mechanical components.
4. Students will demonstrate the ability to design a structural joint such as produced by welding, bolting or riveting.
5. Students will demonstrate the ability to select mechanical elements such as bearings, gears, chain drives and shafts for rotating machinery elements.

Topics Covered:
1. Stresses in Mechanical Elements
2. Stress-based Static Design Criteria
3. Stress-Life Fatigue Design Criteria
4. Structural Joints
5. Rotating Machinery Elements

ENCP 310(210) – Dynamics (pre: ENCP 200 with a C or better)
Kinematics of particles and rigid bodies. Kinetics of particles with emphasis on Newton's second law: energy and momentum methods for the solution of problems. Applications of plane motion of rigid bodies.
Outcomes:
1. Students will demonstrate the ability to describe and analyze the kinematics of particles and rigid bodies.
2. Students will demonstrate the ability to describe and analyze the kinetics of particles and kinetics of rigid bodies in plane motion using Newton's Second Law.
3. Students will demonstrate the ability to describe and analyze the kinetics of particles using energy and momentum methods.

Topics Covered:
1. Dynamics of Particles - introduction to dynamics, kinematics of particles, kinetics of particles, kinetics of systems of particles;
2. Dynamics of Rigid Bodies – plane kinematics of rigid bodies, plane kinetics of rigid bodies

ENGR 334 – Quality Planning and Control* (pre: STAT 509)
Introduction to quality management philosophies, tools, and approaches. Six Sigma philosophy, roadmap, tools, and techniques of planning and executing quality improvement programs and the LEAN continuous improvement approach that focuses on reducing waste. Application of Design for Six Sigma approach to design or improve products and processes.
Outcomes:
1. Students will demonstrate an understanding of the importance of methodology of controlling quality in manufacturing. Methodology includes statistical thinking, statistically based tools, precision measurement, quality planning, the Six Sigma approach and Total Quality Management techniques.
2. Student will explain the nature of variation in the design and manufacture of products and the statistically based methods used to characterize and reduce this variation.
3. Students will select and apply the appropriate methodologies to examine quality related issues in a variety of manufacturing or business process situations, design an approach to gather data and reach conclusions, and make recommendations to resolve the issue or plan further actions.
4. Students will use and apply precision measurement tools and statistical analysis of the measurement system.
5. Students will understand how to successfully select and apply the tools and concepts of business excellence and quality management system models within a team model.

6. Students will understand quality planning methods and develop a quality plan for a manufactured product.

Topics Covered:
1. Quality improvement in the modern business environment
2. Describing variation, discrete distributions, continuous distributions, probability plots, approximations
3. Sampling distributions, point estimation of process parameters, statistical inference for a single sample/two samples
4. Methods and philosophy of statistical process control
5. Control charts for variables
6. Control charts for attributes
7. Process and measurement system capability anaylsis

EMCH 360 – Fluid Mechanics* (pre: MATH 241, ENCP 200 with a C or better)
Mechanical engineering applications of fluid statics and dynamics. Conservation of mass, momentum, and energy. Similitude and dimensional analysis, open channel flow, lift and drag. Introduction to turbulent flow.
Outcomes:
1. Students will demonstrate the ability to use conservation principles (mass, momentum, energy, Bernoulli, work-energy) to analyze a variety of problems in fluid statics and dynamics.
2. Students will demonstrate the ability to apply conservation principles in the design of simple processes involving fluid statics and dynamics.
3. Students will demonstrate the ability to use dimensional analysis for organization and rationalization of experimental data and for scale-up or scale-down of processes involving fluid flow.

Topics Covered:
1. Introduction to Fluid Mechanics: Fluid properties and ideal gas law
2. Fluid Statics
3. Elementary Fluid Dynamics
4. Fluid Kinematics
5. Integral Analysis of Fluid Flow
6. Differential Analysis of Fluid Flow
7. Similitude and Dimensional Analysis
8. Brief Introduction to Viscous Flow: Boundary Layer and Turbulence

ENGR 361 – Instrumentation, Measurements, & Statistics* (pre: STAT 509, PHYS 212, ELCT 221; co: ENCP 260, ENCP 290)
Principles of measurement, analysis of data, experimental planning. Correlations of experimental data, experimental variance, and uncertainty analysis. Lab and lecture.
Outcomes:
1. Students will demonstrate the ability to organize and write a laboratory report.
2. Students will demonstrate the ability to organize and give an oral presentation.
3. Students will demonstrate the ability to explain the operating principles of common instrumentation and interpret the output.
4. Students will demonstrate the ability to apply statistical skills in creating an experiment and interpret the results.

Topics Covered:

1. Organizing and writing the laboratory report
2. Presentation of data and uncertainty analysis
3. Linear measurements
4. Electrical measurements
5. Measurement of dynamic systems
6. Linear regression and curve fitting
7. Organizing and making the technical oral presentation
8. Thermodynamic and heat transfer measurements.
9. Force, Stress, strain and torque measurements
10. Designing an experiment for measuring specified parameters

BADM 371 - Principles of Management and Leadership (pre: Junior standing)
This course focuses on the basic principles of management used by all types of organizations. It serves to provide a foundation of knowledge concerning the theoretical framework of management as well as integrating the practical concerns of reality. Contemporary issue topics and exercises are used to help students synthesize course materials and apply the management concepts and theories. Emphasis and understanding of leadership principles are an integral part of the course. After completion of this course, students should be able:

1. To gain understanding of the nature of management, including study of the four management functions, namely planning, organizing, leading, and controlling, and the concepts of efficiency and effectiveness.
2. To acquaint the student with the historical forces that have influenced management and to gain an understanding of the complexity and importance of managing in today's global environment.
3. To examine the general, task, and internal environments of an organization, including discussion of corporate culture, managerial ethics, and corporate social responsibility.
4. To comprehend the planning process and its link to organizational mission, strategic goals, tactical goals, and operational goals, including a general understanding of the strategic management process, strategy formulation, and strategy implementation.
5. To gain and understanding of the decision making process and its importance to effective management.
6. To explain the fundamental issues in organizing, including chain of command, line and staff, formalization, work specialization, delegation process, span of management, and centralization/decentralization.
7. To cover the basic approaches for structural design of the organization and to understand the relationship between structural design and achievement of strategic objectives.
8. To comprehend the nature of organizational change and the concept of managing the process and overcoming resistance.
9. To gain an understanding of the relationship between human resource management (HRM) and strategic planning, including coverage of major laws and social trends that impact HRM.
10. To understand the complex issues relating to managing cultural diversity in the organization.

11. To discuss the nature of leadership, including the trait, behavioral, and situational approaches with their major respective theoretical basis.
12. To comprehend the nature of motivation including the content theories, process theories, and reinforcement theory of motivation.
13. To explain the nature and importance of communication in the organization, including the communication process and barriers to communication as well as the concept of active listening.
14. To gain an understanding of teamwork in organizations. Include concepts of team formation and stages of development, roles within teams, team cohesiveness, and team conflict along with its causes and styles for resolving it.
15. To understand the importance, purpose, and levels of control in organizations including the steps in the control process and to discuss structural, operations, and financial control, including preliminary, screening, and post-action control forms in operations control.
16. To participate appropriately in other assignments used to enhance the learning process.

ENGR 380 – Introduction to Systems Engineering* (pre: MATH 242, STAT 509, ENGR 334)
An integrated introduction to systems methodology, design, and management. An overview of systems engineering as a professional and intellectual discipline, and its relation to other disciplines, such as operations research, management science, and economics. An introduction to selected techniques in systems and decision sciences, including mathematical modeling, decision analysis, risk analysis, and simulation modeling. Overview of contemporary topics relevant to systems engineering such as reengineering and total quality management. Elements of systems management, including decision styles, human information processing, organizational decision processes, and information system design for planning and decision support.

<u>Year 4</u>

ENGR 316 –Control Systems (pre: MATH 242, ENGR 330, ELCT 221)
An introduction to closed-loop control systems; development of concepts, including transfer function, feedback, frequency response, and system stability by examples taken from mechanical engineering practice; control system design methods. Also an introduction to programmable logic controllers (PLCs).
[EMCH 516 Control Theory]
Outcomes:

1. Students will demonstrate understanding of the basic concepts of feedback control systems and design and analysis methods.
2. Students will demonstrate the ability to apply the classical control theory in the design of mechanical engineering systems.

Covered Topics:

1. The use of Laplace transform for engineering computation
2. Modeling of mechanical systems with sensors and actuators using block diagrams
3. Time response of electromechanical systems
4. Programmable logic controllers
5. Performance indicators for time response of electromechanical systems; steady state errors and response stability
6. System ID, poles, zeros, stability modeling and stability criteria
7. Feedback, servomotor control, steady-state feedback errors
8. PID controllers, phase compensators, filters and prefilters

9. Root locus techniques for feedback control analysis and design
10. Frequency response and transfer function analysis; Bode diagram
11. Nyquist (polar) plots, stability criteria, gain and phase margins
12. Frequency response methods for feedback control analysis and design
13. MATLAB single-input single-output (SISO) control system design tools
14. MATLAB SIMULINK control system design tools

PHIL 325 - Engineering Ethics*
An investigation of ethical issues in engineering and engineering-related technology. Topics include whistleblowing, employee/employer relations, environmental issues, issues related to advances in information technology, and privacy. Engineering ethics involves two related skills: the ability to analyze complex socio-political problems concerning the design, manufacturing, and use of technologies and their technological systems and the ability to communicate reasonably and persuasively about such analyses. In this course we develop both sets of skills through lectures, discussions, written and oral assignments, focusing on the examination of several case studies concerning real technologies in society.
Outcomes:

1. Identify the source and function of values through the investigation of technology in society.
2. Demonstrate an understanding of the importance of values, ethics, and social responsibility for the self and contemporary society within the framework of the engineering profession.
3. Demonstrate the ability to reflect on how values shape personal, professional, and community ethics and decision-making.
4. Identify and demonstrate appropriate means of communication for varied audiences and purposes.
5. Demonstrate the ability to reason clearly in speaking and writing to inform, persuade, and exchange views.
6. Articulate a critical and informed position on an issue and engage in productive and responsible intellectual exchanges that demonstrate the ability to grasp and respond to other positions as well as set forth their own.

Topics Covered:

1. Framing engineering ethics
2. Ethical Theories
3. Public Speaking
4. Reasoning and presenting case studies

ENGR 421 – Engineering Economics & Finance* (pre: ECON 221 or 222)
Decision making with respect to capital goods, with emphasis on such decision making in governmental activities and public utilities. Intended primarily for engineering students, the course emphasizes the types of investment decisions that engineers are often called upon to make.
Outcomes:

1. To introduce each student to the basic engineering economic concepts including time value of money, the meaning of equivalence, rate of return comparisons, replacement analysis, economic life, and the cost of government.
2. To give students a sound introduction to cost and revenue estimation and economic modeling in order to permit them to select the best alternative using bother engineering and economic criteria.
3. Students will demonstrate the ability to analyze situations and apply appropriate techniques to solve problems

Topics Covered:

1. Time value of money
2. Equivalence
3. Geometric gradients and spreadsheets

4. Present worth
5. Equivalent annual worth
6. Rate of return
7. Benefit/cost ratios
8. Constrained project selection
9. Mutually-exclusive alternatives
10. Replacement analysis
11. Depreciation
12. Income taxes
13. Uncertainty and probability

BADM 494 Project Management (pre: BADM 371)
A study of general principles of project management which includes concepts related to management of technology, people, stakeholders and other diverse elements necessary to successfully complete the project. The student will explore both technical and managerial challenges involved in managing projects.

Project Management Learning Objectives include the following:

1. Understand the nature of project management.
2. Understand the major knowledge areas and processes. The historical development and framework of the labor movement in America.
3. Provide an overview of the various certifications and their importance related to project management and the global business environment.
4. Provide experience with MS Project Software.
5. Utilize cases, readings, and/or exercises as applicable to gain further perspective of project management.

ENGR 498 - Capstone Design I*
An integral part of the education provided to undergraduates in engineering is a senior two-semester course sequence in "capstone" design. The objectives of the sequence are to:

1. Require application of the knowledge gained in earlier courses to the design process.
2. Familiarize the student with the engineering design process: Definition, Synthesis, Analysis and Implementation.
3. Improve communication skills.
4. Promote organizational skills.
5. Stress importance of other influences on design such as economics, reliability, performance, safety, ethics and social impacts.
6. Simulate the post graduate job environment.

The design projects are selected from problems submitted by the students, faculty and local industry. Industry projects are given preference since these projects are best suited for meeting the course objectives.

ENGR 499 – Capstone Design II*
An integral part of the education provided to undergraduates in engineering is a senior two-semester course sequence in "capstone" design. The objectives of the sequence are to:

1. Require application of the knowledge gained in earlier courses to the design process.
2. Familiarize the student with the engineering design process: Definition, Synthesis, Analysis and Implementation.
3. Improve communication skills.
4. Promote organizational skills.
5. Stress importance of other influences on design such as economics, reliability, performance, safety, ethics and social impacts.
6. Simulate the post graduate job environment.

The design projects are selected from problems submitted by the students, faculty and local industry. Industry projects are given preference since these projects are best suited for meeting the course objectives.

Technical Electives

EMCH 354 – Heat Transfer* (pre: MATH 242, ENCP 290, EMCH 360,)
One- and two-dimensional steady and unsteady conduction; free and forced convection; boiling and condensation; heat exchangers.
Outcomes:

1. Differentiate among three basic modes of heat transfer.
2. Analyze thermal systems. They will be able to assess the feasibility of a design and estimate efficiency of a configured system.
3. Apply calculus and linear algebra procedures appropriate to solve specific heat transfer problems in an engineering setting
4. Identify important engineering terms and basic thermal concepts to be used in other engineering courses.

Topics Covered:

1. Introduction to heat transfer
2. Introduction to conduction
3. 1-D Steady state conduction
4. 2-D Steady state conduction
5. Transient conduction
6. Radiation: processes and properties
7. Introduction to convection
8. Boiling and condensation
9. Heat exchangers

ENGR 454 – Unit Operations* (pre: EMCH 354, EMCH 360, ENCP 290)
This course presents the standard unit operations in chemical and metallurgical systems and discusses the principles governing fluid flow, heat transfer, mass transfer, thermodynamic and mechanical processes. The design and operation of the devices for these unit operations is emphasized and the course will discuss the application to such areas as fluid transportation, evaporation, distillation, refrigeration and solids.

EMCH 377 – Manufacturing Processes (pre: EMCH 371)
Basic principles of metal processing; applied mechanics of metal cutting and forming; cost analysis of manufacturing operations.
Outcomes:

1. Students will describe a variety of major manufacturing processes, such as casting, bulk metal working, plastics processing, machining and welding.
2. Students will apply concepts from engineering materials, heat transfer, fluid mechanics and solid mechanics to understand the origin of, and to estimate the value of, the relevant process parameters for major manufacturing processes.
3. Students will demonstrate understanding of quality concepts including the Taguchi Loss Function and Shewhart Control Charts.
4. Students will use Shewhart Control Charts and associated statistics to identify in control and out of control processes.

Topics Covered:

1. Metal Casting
2. Metal Forming
3. Plastics Processing
4. Machining
5. Process Selection and Economics
6. Design for Manufacturing Considerations

ENGR 477 – Advanced Manufacturing (co: ENGR 334)
In-depth study of the planning and method of selection and sequencing of various chip generating and assembly processes in order to produce a product with the highest usable quality at the lowest cost. Workplace design, assembly, and inspection features and positioning devices analyzed. Advanced techniques involving robotics and computers used in developing manufacturing processes.
Outcomes:

1. Students will design and implement robotic applications for manufacturing processes
2. Students will write and implements numerical control and computer numerical control programs.
3. Students will understand and apply the concepts of a safe work environment
4. Students will interpret and analyze dimensions and tolerances on an engineering drawing
5. Students will distinguish the essential skills necessary for success in teamwork and in communication.
6. Students will apply process planning, group technology, and stochastic analysis to determine optimal plant layout and part sequence
7. Students will identify and implement the most effective methods of material handling.
8. Students will identify the key elements of the professions' code of ethics as well as the ethical and societal issues related to the disciplines and their impact on society and the world

Topics Covered:

1. Robotics
2. Numerical Control Programming
3. OSHA in the workplace
4. Geometric Tolerances
5. Group Technology
6. Process Planning
7. Queuing Theory
8. Material Handling
9. Virtual Manufacturing

STAT 510 – Statistical Quality Assurance (pre: STAT 509 with C or better)
Basic graphical techniques and control charts. Experimentation in quality assurance. Sampling issues. Other topics include process capability studies, error analysis, estimation and reliability.
Outcomes:

1. Develop and demonstrate the ability to collect and analyze data in order to monitor and improve quality, and clearly communicate those findings.

Topics Covered:

1. Linear Regression, SLR, Multiple Regression
2. Analysis of Variance (ANOVA): one-factor and multi-factor experiments
3. Statistical Quality Control: Variables Control Charts, Attributes Control Charts

MGMT 475 Production/Operations Management (pre: BADM 296 and BADM 371)
A study of the strategic, operating, and control decisions involved in manufacturing and service organizations. Topics include forecasting, process development, production technology, resource allocation, facility planning, facility layout, planning systems, inventory systems, resource requirements planning systems, shop floor planning, scheduling operations, just-in-time manufacturing, materials management, productivity control, quality management, quality control, project management, and maintenance management. Students will be able to:

1. Understand the role of operations function in the organizations
2. Understand the relationship between operations function and supply chain
3. Learn to compute basic performance measures for the line
4. Learn to create to process maps for a business process
5. Learn to calculate and interpret measures of process performance
6. Learn to apply expected value and break-even analysis, decision trees, learning curves, the Theory of constraints, waiting line theory and Little's law.
7. Learn to calculate percentage of perfect orders and landed costs
8. Learn to use Microsoft Excel Solver function
9. Learn to apply optimization modeling techniques to the S&OP process
10. Learn to compute economic order quantity, reorder point, best order quantity for various types of inventory systems
11. Understand the common approaches to improving product/service design – Define-Measure-Analyze-Design-Verify, quality function deployment, design for manufacturability and target costing

9. **ASSESSMENT**

a) Student Learning Outcomes

ABET requires the following student learning outcomes:

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
(d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

b) Programmatic Assessment:

USC Aiken will take the following measures to assess the engineering program:

1. Continue the engineering advisory board that consists of engineers from local businesses and industry. The role of the advisory board will be to help USCA review the curriculum, review assessment data, and provide recommendations to ensure our graduates remain relevant to local business and industry.
2. Monitor the number of majors and program graduates.
3. Survey employers of our engineering graduates.
4. Survey our graduates.
5. Monitor the number of graduates who obtain Professional Engineering Certification.
6. Regularly monitor facilities and equipment.

c) Data Driven Programmatic Changes:

1. Student and program data will be reviewed on an annual basis and changes made as appropriate.
2. Although ABET will not accredit a program until there are program graduates, USCA will seek accreditation as soon as it can. As with all accreditation processes, this will provide another form of program assessment.

10. **FACULTY**

a) Faculty List

Table B – Engineering Faculty List

List Staff by Rank	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Assistant Professor #1	Ph.D.	Mechanical Engineering	Yes
Assistant Professor #2	Ph.D.	Industrial/Process Engineering	Yes
Assistant Professor #3	Ph.D.	Industrial/Process Engineering	Yes

b) New Faculty:

USC Aiken will hire two additional tenure track faculty for the program. Expectation is for each to have a terminal degree (Ph.D.) in Industrial Engineering or other engineering discipline that supports the program. One hire will be made for Fall 2015 and one for Fall 2016.

c) Existing Faculty:

Currently, USCA has one tenure track faculty member on staff who currently teaches the freshman and sophomore level engineering classes for our current two year program. The business/management classes, (Engineering Economics and Finance, Supply Chain Management and Logistics, Business Relationships) will be taught by current faculty in the School of Business. Classes will be part of current teaching load. If necessary, qualified part-time faculty will be used to teach classes.

d) Faculty Development:

Each unit on campus is allocated $400 per full time faculty member for professional development. In addition to this amount, the university, through it's partnership funds, has provided additional funding that faculty can apply for. This amount has averaged approximately $65,000/year over the past five years. Therefore faculty, on average, get approximately $800-$1000 for professional development activities.

e) Full-time Equivalent Definition:

A full-time equivalent faculty member for a full-time instructor, tenure track and tenured faculty at USCA teaches 12 contact hours each fall and spring semester for a total of 24 contact hours per academic school year. This normally equates to 4 courses each semester.

f) Unit Administration, Faculty, and Staff Support:

UNIT ADMINISTRATION, FACULTY, AND STAFF SUPPORT						
YEAR	NEW		EXISTING		TOTAL	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2015-2016			1	.5	1	.5
2016-2017			1	.5	1	.5
2017-2018			1	.5	1	.5
2018-2019			1	.5	1	.5
2019-2020			1	.5	1	.5
Faculty						
2015-2016	1	1	1	1	2	2
2016-2017	1	1	2	2	3	3
2017-2018			3	3	3	3
2018-2019			3	3	3	3
2019-2020			3	3	3	3
Staff						
2015-2016			1	.33	1	.33
2016-2017			1	.33	1	.33
2017-2018			1	.33	1	.33
2018-2019			1	.33	1	.33
2019-2020			1	.33	1	.33

11. **PHYSICAL PLANT**

a) Existing Facility

USCA has six buildings that house academic units. There are 41 classrooms, 5 auditoriums, 14 labs, and 8 computer classrooms that are designated as academic areas. All classrooms and auditoriums are wired for computers and have LCD projection systems. The 8 computer classrooms house 141 computers.

The program will be part of the Department of Mathematical Science which is housed in the Penland Building. Engineering classes will continue to be held in the Penland Building as they have for the past 25 years. Classroom space is adequate.

b) Facility Modification

A classroom has been identified that will be outfitted with lab tables and electricity to accommodate for additional engineering activities. Additional lab space is available in the science building in the physics classroom if needed. Funding for this modification will be a reallocation of internal resources as well as some external funding that has been raised for the program.

12. **EQUIPMENT**
The following materials/equipment/software will be purchased over the next few years to support the program:

Software – Pro/ENGINEER (Creo Parametric), MatLab - $75,000
Measuring Equipment - $25,000
Laboratory Equipment - $65,000
3D Printer - $125,000
Large Format Printer - $5,000
Additional Equipment/materials to be identified - $50,000

13. LIBRARY RESOURCES

a) Current Holdings:

Library Resources for New Program Proposal: B.S. in Industrial Process Engineering
The Gregg-Graniteville Library occupies a recently renovated two-story 40,000 square foot building situated on the main university quadrangle. The Gregg-Graniteville Library is an official depository for Federal and South Carolina documents. The library is open 78 hours per week with variations during exam periods, inter-sessions, summer terms, and holidays.
a) qualitative and quantitative assessment of current holdings in view of the program being proposed.
The Gregg-Graniteville Library collection currently contains:

Print Volumes (Books/Serials): 211,251	E-Books: 62,626
Microform Units: 79,896	AV Units: 4,088
Databases (including PASCAL and DISCUS): 252	E-Journals: 29,776

Our current monograph holdings (print and electronic) in areas related to Engineering, subdivided by subject include:

Technology (General) -- (Library of Congress Call# Subclass T): 724 volumes
Engineering (General) (Library of Congress Call# Subclass TA): 1119 volumes
Hydraulic Engineering (Library of Congress Call# Subclass TC): 48 volumes
Environmental Technology (Library of Congress Call# Subclass TD): 451 volumes
Highway Engineering (Library of Congress Call# Subclass TE): 13 volumes
Railroad Engineering (Library of Congress Call# Subclass TF): 16 volumes
Bridge Engineering (Library of Congress Call# Subclass TG): 17 volumes
Building Construction (Library of Congress Call# Subclass TH): 84 volumes
Mechanical Engineering (Library of Congress Call# Subclass TJ): 624 volumes
Electrical Engineering (Library of Congress Call# Subclass TK): 2029 volumes
Motor Vehicles (Library of Congress Call# Subclass TL): 348 volumes
Mining Engineering (Library of Congress Call# Subclass TN): 112 volumes
Chemical Technology (Library of Congress Call# Subclass TP): 332 volumes
Total monographs (print and electronic) holdings: 5917 volumes

A qualitative examination of the titles in the USCA collection was conducted comparing our current holdings with those in *Resources for College Libraries (RCL)*. RCL is a collaboration between *Choice*, a publishing division of the Association for College and Research Libraries (ACRL) and Bowker, a leading publisher in bibliographic authority. The RCL is the premier core

list for academic libraries. *RCL* is a highly selective core list of close to 60,000 titles across subject areas representing essential texts for academic libraries, particularly for those of small liberal arts colleges. When the USCA library holdings were compared with the titles in *Resources for College Libraries*, the results in the relevant areas were as follows:

LC Classification	Total # of Volumes Owned	% of Core Titles Owned (Resources for College Libraries)
(T1-995)Technology (General)	724	9%
(TA1-2040)Engineering (General). Civil engineering (General)	1119	5%
(TC1-978)Hydraulic engineering	48	0%
(TC1501-1800)Ocean engineering	0	0%
(TD1-1066)Environmental technology. Sanitary engineering	451	12%
(TE1-450)Highway engineering. Roads and pavements	13	0%
(TF1-1620)Railroad engineering and operation	16	0%
(TG1-470)Bridge engineering	17	25%
(TH1-9745)Building construction	84	2%
(TJ1-1570)Mechanical engineering and machinery	624	5%
(TK)Electrical Engineering	2029	6%
(TL) Motor Vehicles	348	5%
(TN) Mining Engineering	112	12%
(TP) Chemical Technology	332	10%

The majority of the Engineering related collection (58%) was published between 2000 and 2010. 12% of the collection was published since 2010.Qualitatively, our current monographs collection is strongest in the areas of Sanitary Engineering, Bridge Engineering and Mining Engineering. Quantitatively our holdings are strongest in General/Civil Engineering and Electrical Engineering, Our current monographs collection needs to be strengthened to include more current and quality titles particularly in the areas of Mechanical and Electrical Engineering. This would require an estimated $5,000 additional funds per year.

Current databases or e-journal packages with Engineering-related materials currently accessible to USCA students include:

ACS Web (American Chemical Society)
Science Direct
SpringerLink
Wiley Online Library
SciFinder Scholar
MathSciNet
Web of Knowledge

Our electronic databases are not currently adequate for the proposed degree. To adequately support the degree and its emphasis on Mechanical Engineering, subscriptions to the following resources are strongly recommended:

Compendex (via Elsevier's Engineering Village platform) = $28,904
INSPEC (via Elsevier's Engineering Village platform) = $7,735
Standards and Engineering Digital Library (SEDL) (from the American Society for Testing and Materials (ASTM) = $16,200
American Society of Mechanical Engineers (ASME) Journal Package = $8,511

Should the degree continue to expand to include more of a focus on Electrical Engineering, the following resource should also be adopted:
Institute of Electrical and Electronics Engineers (IEEE) Digital Library

The prices quoted here are for 2014. Database costs generally rise 3-6% annually.

Current journal holdings
The library currently subscribes directly to four serial subscriptions in the area of Engineering including:

Chemical Engineering	*Civil Engineering*
IEEE Spectrum	*Mechanical Engineering*

In addition to these titles, USCA faculty and students have access to approximately 1,428 other serial titles relevant to Engineering through our full-text databases and consortial journal packages.

b) New Acquisitions

	1st year	2nd year	3rd year	4th year	5th year	Total
Monograph purchases	**$5,000**	**$5,000**	**$5,000**	**$5,000**	**$5,000**	**$25,000**
Database subscriptions	**$61,350**	**$61,350**	**$61,350**	**$61,350**	**$61,350**	**$306,750**
TOTAL	**$66,350**	**$66,350**	**$66,350**	**$66,350**	**$66,350**	**$331,750**

c) PASCAL:
USCA maintains a formal written agreement with all universities and colleges in South Carolina, the Partnership Among South Carolina Academic Libraries (PASCAL http://pascalsc.org/), which supports both consortial purchasing of databases and statewide borrowing of materials. PASCAL Delivers provides for reciprocal library borrowing among private and public colleges/universities throughout the state. It is supported by a statewide courier service which makes book deliveries to campuses five days a week. The majority of our databases relevant for the proposed degree are not impacted by PASCAL.

Additional services
Using ILLIAD, a web-based Interlibrary Loan system, librarians fill requests for articles or documents that are scanned and transmitted via Ariel software. USC Aiken belongs to the KUDZU Consortium of southeastern libraries, providing delivery of items not available within the state to faculty and students within a few days.

The library maintains an active program of research assistance and instruction. The library faculty support classroom instruction in the disciplines and offer both general and course-specific library instruction. Instruction sessions are tailored to the needs of the course and the specific requirements of individual faculty members with the stated purpose of enabling all members of the college community to achieve information literacy in preparation for lifelong learning in a changing and global society.

14. ACCREDITATION, APPROVAL, LICENSURE, OR CERTIFICATION

a) Accreditation:

USC Aiken will seek accreditation from ABET the Accrediting Board for Engineering and Technology. According to the ABET web-site (http://www.abet.org/accreditation-timeline/) it takes approximately 18 months to complete the accreditation process. The process can be initiated once the first students graduate from the program. Under the proposed timeline, the first students could graduate in spring 2017. According to the ABET guidelines the accreditation process includes the following:

a. Readiness Review (one year before on-site visit)
b. Request for Evaluation (nine months prior to visit)
c. Self Study Report (six months prior to visit)
d. On-site visit
e. Draft statement provided by ABET (two to three months after visit)
f. Institutional response to draft statement (three to four months after visit)
g. Institution receives accreditation notification (August)

b) Licensure:

According to the National Society of Professional Engineers web site (http://www.nspe.org/resources/licensure/what-pe), to become a licensed engineer a person must:

- ☐ Earn a four-year degree in engineering from an accredited engineering program
- ☐ Pass the Fundamentals of Engineering (FE) exam
- ☐ Complete four years of progressive engineering experience under a PE
- ☐ Pass the Principles and Practice of Engineering (PE) exam

The first graduates of USC Aiken's engineering program will be eligible to take the engineering exam in 2021.

c) Teacher Preparation – Not applicable.

15. ARTICULATION

a) Associate-level to Baccalaureate:

Not applicable. USC Aiken does not offer an associates degree.

b) Entry from two-year institutions:

USC Aiken has developed the program so that the students in the pre-engineering program at Aiken Technical College can transfer into the program without losing any credit. A formal memorandum of understanding between USC Aiken and ATC is included in the appendix. Because Aiken Technical College is within the technical college system of South Carolina, those courses that are accepted via the articulation agreement with Aiken Technical College, will also be accepted from other technical colleges within the South Carolina Technical College System.

c) Terminal degree:

This degree is not a terminal degree.

d) MOUs:
USC Aiken has signed a MOU with Aiken Technical College. Students in ATC's pre-engineering program will be able to transfer into USC Aiken's engineering program without losing any credit.

Additionally, for the past 25 years, USC Aiken has offered a two-year pre-engineering program where students could transfer to USC Columbia's engineering program. Students will still be able to transfer to USC Columbia after successfully completing the first two years of this program.

e) Explanation:
USC Aiken will continue to offer the pre-engineering program for those students wanting to transfer to USC Columbia. USC Aiken has a MOU with Aiken Technical College for students in their engineering program to transfer into our program.

f) Articulation with the South Carolina Transfer and Articulation Center
Within 18 months of the implementation of a new academic program, articulation information regarding the program will be posted to the online South Carolina Transfer and Articulation Center as required by CHE.

16. ESTIMATED COSTS AND SOURCES OF FINANCING

a) Estimated Costs and Financing

Table D – Estimated Costs and Sources of Financing by Year

ESTIMATED COSTS BY YEAR					
CATEGORY	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
Program Administration	45,720	47,090	48,500	49,960	51,460
Faculty Salaries	407,250	544,560	560,470	577,470	594,830
Part-Time Faculty Salaries	15,000	15,480	15,960	16,440	16,920
Graduate Assistants	-	-	-	-	-
Clerical/Support Personnel	14,980	15,430	15,890	16,370	16,860
Supplies and Materials	100,000	125,630	128,770	131,990	135,290
Library Resources	66,350	68,010	69,710	71,450	73,230
Equipment	345,000	51,250	52,530	53,840	55,190
Facilities	50,000	50,000	-	-	-
Other (Identify)	-	-	-	-	-
TOTALS	**1,044,300**	**917,450**	**891,830**	**917,520**	**943,780**
SOURCES OF FINANCING BY YEAR					
Tuition Funding	765,720	897,400	928,000	958,600	990,220
Program-Specific Fees	27,750	35,850	35,850	35,850	35,850
State Funding*	-	-	-	-	-
Reallocation of Existing Funds**					
Federal Funding	-	-	-	-	-
Other Funding (Specify)***	250,830				
TOTALS	**1,044,300**	**933,250**	**963,850**	**994,450**	**1,026,070**
FUND BALANCE IMPACT	**-**	**15,800**	**72,020**	**76,930**	**82,290**

***Private sources

b) Assumptions

- We expect to maintain approximately 100 students in the program. To be conservative, we are assuming all students will be paying in-state tuition.
- Uses current tuition rate of $9018/year and 3% increase each year of program.
- Establishes a $100 majors fee for freshman/sophomores.
- Establishes a $300 majors fee for juniors/seniors
- Establishes a $10/credit hour lab fee for 100/200 level engineering courses
- Establishes a $25/credit hour lab fee for 300/400 level engineering courses

c) Special State Appropriations

USC Aiken does not plan to request additional state appropriations.

d) Institutional Funding and Other Sources

Funding for the program is from three sources; reallocation of current general revenue, tuition generated from engineering majors, and private sources of funding. Since USC Aiken already has a pre-engineering program, classroom and lab space already exists to support the program. The addition of two new faculty members will be accomplished by reallocating funds to convert a current instructor slot in mathematics to a tenure track engineering slot. The second new faculty member will be funded through reallocation of existing funds. These are reflected in the budget table.

To date USC Aiken has raised over $400,000 (URS and Savannah River Remediation) in support of the program to help purchase lab equipment and materials to support the upper level courses. Additionally USC Aiken has a pledge for $250,000 for an endowed chair. Once the program is approved, USC Aiken believes it will be able to raise significant additional funding to support the program.

$400,000 – pledged and partially paid from URS and Savannah River Remediation
$50,000 minimum annually – Savannah River Nuclear Solutions Engineering Scholarships
$72,000 - XXX Engineering Program Endowment Fund
$250,000 planned gift -XXX Engineering Endowed Professorship
$1,000 annually – Society for Mechanical Engineers
$25,000 – XXX Engineering Scholarship Endowment
$20,000 – XXX Engineering Scholarship Endowment
$10,000 – BAE Engineering Scholarship Endowment

XXX = local citizens who have committed to these Endowments.

In addition, local business/industries have indicated they are willing to offer lab space if needed in the future.

17. **PROGRAMS FOR TEACHERS AND OTHER SCHOOL PROFESSIONALS**

Not applicable to this proposal.

New Program Proposal
Master of Science in Sport Management
Coastal Carolina University

Summary

Coastal Carolina University requests approval to offer a program leading to the Master of Science in Sport Management to be implemented in Fall 2015. The proposed program is to be offered through traditional instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	10/15/13	Not Applicable
Program Planning Summary considered by ACAP through electronic review	12/2/13	Dr. Kris Finnigan expressed concern about the proposed program duplicating USC Columbia's program. These concerns were addressed in the proposal submitted by Coastal Carolina University.
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	ACAP members expressed support for and voted to approve the proposed program.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested that the proposal include the rationale discussed at the ACAP meeting for offering a broad program, especially since there are three other masters-level programs offered by public institutions in SC that have a more specific focus. Staff also requested that the employment information explain the relevance of the jobs listed and that the Justification section provide reasons as to how the proposed program helps teachers and administrators educate students better. Staff also requested more information about how students could tailor the curriculum and asked that the library section include the collections in specialized subjects in the sports industry.
Revised Program Proposal Received	11/21/14	The revised proposal satisfactorily addressed all of the requested revisions.

Stages of Consideration	Date	Comments
CAAL Consideration	1/8/2015	Commissioners asked about program productivity of similar programs in SC. Commissioners also asked University representatives to describe the plan for developing the new courses. Dr. Ralph Byington provided information explaining that the proposed program will require 10 new courses and that these courses will rotate and be developed over a period of three semesters. Commissioners also asked whether the program's assessment will include feedback from employers. Dr. Colleen McGlone, program coordinator for the Recreation and Sport Management program, described the ways in which employer feedback will be used to evaluate the program.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program leading to the Master of Science in Sport Management to be implemented in Fall 2015.

Committee Member Questions and CHE/Institutional Responses:
Coastal Carolina University, M.S., Sport Management

QUESTION: Pg 4, productivity.... If available, please provide productivity numbers for the similar programs of the listed SC institutions.

INSTITUTIONAL RESPONSE:

Headcount Enrollment (Fall Term)					
Institution	**2009**	**2010**	**2011**	**2012**	**2013**
The Citadel: M.A., Sport Management[1]					11
USC Columbia: MSEM, Sport and Entertainment Management	33	44	54	52	46
Winthrop: M.S., Sport and Fitness Administration /Management[2]		13	20	18	16

Completions					
Institution	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**
The Citadel: M.A., Sport Management[1]					4
USC Columbia: MSEM, Sport and Entertainment Management	13	23	25	32	21
Winthrop: M.S., Sport and Fitness Administration /Management[2]		3	7	6	7

1. The Citadel's program was approved by CHE in June 2013.
2. Winthrop's program was approved by CHE in January 2010.

QUESTION: Pg 13, course development ... the program will require a number of new courses, please justify that there exists capacity to develop these courses on the needed time line.

INSTITUTIONAL RESPONSE: The program will require ten (10) new courses be established in order to meet the accreditation content area guidelines. The program is designed to be completed in no less than three (3) semesters; therefore, the courses will rotate, indicating that not all ten (10) courses will be offered each semester. Currently, the program has six (6) tenured or tenure-track faculty and one full-time lecturer in place. The new faculty positions will be staggered with one tenure-track faculty to begin in Fall 2015 (the first semester of the program, if approved), and a second new tenure-track line to be added the following year. Any additional faculty will be based on program growth and enrollment over time. With the current faculty and the addition of the two new faculty members within the first two years, there will be

enough support to cover the course load requirements of the master's program. Each of the courses will be taught by a faculty member (existing & new) who has expertise in the area, and each course listed has at least two faculty members who have both the academic and applied background to teach that specific course.

QUESTION: Pg 14, employer feedback. Will your program assessment include feedback from employers concerning the breath, depth and quality of the curriculum?

INSTITUTIONAL RESPONSE: Yes. This will occur in multiple ways. First, while this was not addressed in detail in the proposal, part of the assessment for any student who participates in the internship course includes two assessments which require employer feedback during the internship. One occurs at the midpoint of the internship, and one is completed at the end. These assessments ask for feedback in several professional areas specifically, as well as ask for the employer to rate the student as compared to other employees & interns coming out with the same educational background. In addition, the program will elicit feedback from both employers and students after graduation through interviews and surveys. This is already in place for the undergraduate program and will continue for the new graduate program.

COASTAL CAROLINA UNIVERSITY
Conway, South Carolina

Proposal to
The South Carolina Commission on Higher Education

To establish a

Master of Science in Sport Management

September 15, 2014

Program Contact Information:
Dr. Colleen McGlone
Coordinator, Recreation & Sport Management
cmcglone@coastal.edu
(843) 349-2989

Signature is available on the original

_____

David A. DeCenzo
President

I. Classification

Program Title: Master of Science in Sport Management

Academic Unit Involved: College of Science
Dept. of Kinesiology, 2-year degree
Designation, Type, and Level: Master of Science in Sport Management
Proposed Date of Implementation: Fall 2015
CIP Code: 31.0504
Site: Main Campus – Coastal Carolina University
Supplemental STEM, Palmetto Fellows and Life Scholarship: No
Delivery Mode: Traditional and Hybrid

II. Institutional Approval

List of all internal institutional bodies of which approval was required and the dates on which each such body approved the program.

Internal Institutional Body	Date of Required Approval
Curriculum Committee, College of Science	May 13,2014
Graduate Council	May 14, 2014
Faculty Senate	July 10, 2014
Provost	August 20, 2014
President	August 20, 2014
Board of Trustees	December 13, 2013

III. Purpose

Purpose of the Program

The Master of Science in Sport Management meets the unique needs of individuals seeking advancement in career and/or study, or entry into careers in managing sport organizations. The program will offer a theoretical foundation combined with real-world experiences throughout the curriculum. A variety of experiential learning opportunities will be embedded in the program's curriculum. Examples include working with CCU and the Myrtle Beach Pelicans athletics programs in the areas of revenue generation involving sales and sponsorships. Students will also gain experience with the established partnerships that the undergraduate program has maintained with the City of North Myrtle Beach, Conway Parks and Recreation and the Ripken Experience, as well as many other organizations.

The proposed program will appeal to individuals seeking specialized leadership and management positions in sport settings. Job titles may include but are not limited to: sport information directors, compliance officers, academic athletic advisors, marketing and promotion directors, media relations directors, public relations directors, sport information directors, facility managers, operations directors, ticket managers, assistant athletic/associate athletic directors, and athletic directors. Each of the titles listed frequently seeks candidates that have an advanced degree in sport management as well as experience in the professional

field as it relates to each employment position. The program will provide research and public service in high-demand areas indigenous to our community and region (e.g. sport tourism, minor league sports, school-based athletics, etc.).

Program coursework will focus on creating a broad-based foundation for the planning, organizing, directing, leading and evaluation of sport organizations, agencies, and facilities. Sport as a business continues to expand. This expansion has led to an increased need for managers who understand the complexities of the sport environment. Organizations continue to seek employees who have understanding of the multivariate world of sport and its connections to education, business, media and philanthropic entities.

The proposed program will provide an educational outlet for students who desire to seek more advanced knowledge, education and experience as related to the variety of management functions embedded in the management of sport operations. As defined, sport management involves any combination of skills related to planning, organizing, directing, controlling, budgeting, leading, and evaluating within the context of an organization or department whose primary product or service is related to sport or physical activity (DeSensi, Kelley, Blanton & Beitel, 2003). Sport managers utilize these skills in an assortment of organizational settings, including but not limited to: college sports, professional sports, amateur sports, sport marketing and management firms, sport communications, corporate sponsorship and advertising, arenas, stadiums, community recreation sports programs; and sport tourism. Clearly, sport occurs in a wide range of organizational settings. This diversity, combined with the current growth in sport tourism, specialized sports facilities, adventure travel, and globalization, contribute to the continued high growth of the sport industry. The program differs from others in South Carolina in terms of the broad-based scope of the program and the curriculum. In general, the other programs in the state offer a more narrow or distinct pedagogical scope and focus. To clarify, the Master of Science in Sport and Entertainment Management (MSEM) at the University of South Carolina-Columbia " is designed to train students for management and leadership roles in the sport, entertainment and venue industries" (http://www.hrsm.sc.edu/spte/graduate). The Sport and Fitness Administration Master's degree program at Winthrop University has a curricular focus that aims to produce graduates who "will be leaders in the promotion of sport and fitness," and a review of the curriculum shows a curricular focus towards the fitness industry (www.winthrop.edu). The Citadel offers a certificate program which offers "five (5) courses that will enhance the breadth and depth of knowledge and skills in sport sales and marketing for students enrolled"(www.citadel.edu). Coastal's program will suit more possible employment needs.

The Bureau of Labor Statistics indicates that employment in areas related to sport management will grow faster than most other areas through the year 2022. In addition, a review of employment opportunities listed through several sources, such as Teamworkonline.com, higheredjobs.com, Bluefishjobs.com and other sport-specific employment postings, indicate "Masters preferred" or "Masters required" within the non-entry level job announcements. Job advertisements in the field typically indicate that the successful candidate would have a broad knowledge base integrated with experiential education and problem solving skills that meet the unique needs of the sport industry. Graduates of the proposed program will be particularly well suited for careers in some of the fastest growing occupations, as shown in the examples listed in Table 1.

[1] South Carolina Technology Alliance website. http://www.sctech.org/advocacy.php

Job Title	Job Outlook 2012-22 (projected growth)	Employment Change 2012-22
Event Planners	33%	31,300
Market Research	32%	131,500
Coaches and Scouts	15%	36,200
Public Relations & Fundraising	13%	8,000
Advertising, Promotions & Marketing	12%	25,400
Sales Managers	8%	29,800

Table 1. Job Outlook
(*Data obtained from [2] Bureau of Labor Statistics Occupational Outlook Handbook 2012-13)*

Objectives of the Program

The mission of the Master of Science in Sport Management program is to prepare future leaders of the sport industry through critical examination of both academic and practical applications of management principles in various segments of the sport industry. The faculty seek to challenge, engage, and cultivate students in becoming skilled and knowledgeable sport managers. To that end, the program will (1) prepare students to work in a variety of sport settings, (2) produce graduates who utilize critical thinking skills to solve controversies and issues in sport management settings, (3) produce graduates who demonstrate an understanding of the issues and principles of law as they apply to sport settings, (4) prepare students to assess the effectiveness of strategies used by sport organizations when developing managerial strategies related to overall organizational success, and (5) develop students' understanding of basic management strategies used to maintain or improve facility and venue operations.

IV. Justification

Need for the Program in the State

The U.S. Census Bureau reported in March 2014 that Myrtle Beach was the 7th fastest growing metro area in the United States. This indicates a need for additional infrastructure, including education, as well as recreation and leisure services. The sport industry continues to be a large and fast-growing part of the nation's economy. Recent data from the Bureau of Labor and Statistics (2012) indicate sport-related jobs are expected to increase 23% by 2018, a much larger increase than for many other employment sectors. South Carolina has experienced rapid and continued growth in the sport industry. In 2010, the U.S Census Bureau estimated the sport and entertainment industry generated approximately $189.4 billion in annual revenue. South Carolina generates approximately $1.4 billion in yearly revenue from the sport and entertainment industry. Sport events represent an estimated $132 million in direct spending in the Myrtle Beach area alone (visitmyrtlebeach.com, 2013). The region has seen widespread expansion in the building of sporting facilities, including four major new sport facilities opening in the last three years in the Myrtle Beach area, representing over $75 million in new facilities.

It is estimated that the Myrtle Beach area generates over $35 million in sport and sport tourism-related revenue on an annual basis (Beale, 2013). The new program will provide research and public service in high demand areas indigenous to our community and region (e.g. sport tourism, minor league sports, school-based athletics, etc.). Coastal Carolina University is geographically unique as there are eighteen top minor league sport markets within a five-hour radius of the University (*Sport Business Journal*, 2013). Additionally, there are 33 professional sport teams within a 500 mile radius. These professional and minor league organizations have expressed a need for highly trained individuals who understand the complexities of managing the sport product.

The growth and development of intercollegiate and interscholastic athletic programs also help create the need for this program. Acosta and Carpenter (2006) cite that, within member institutions of the National Collegiate Athletic Association (NCAA), administrative positions have grown by 50% in the last twenty years. Intercollegiate administrative positions have grown 17.5% since 2000. In the most recent data stemming from the U.S Bureau of Labor Statistics, athletics director positions are predicted to grow at a rate of 30% over the next decade, which is much faster job growth than most employment sectors. Of the 1,067 colleges and universities affiliated with the NCAA, each maintains an average of four (4) to seven (7) athletic administrators. Other intercollegiate athletic associations include the ***National Association of Intercollegiate Athletics*** (NAIA), the ***National Junior College Athletic Association*** (NJCAA), and the National Christian College Athletic Association (NCCA). In South Carolina, there are 24 NCAA-member colleges or universities. Also, there are a combined 175 institutions of higher learning that participate in college athletics at some level within South Carolina, North Carolina and Georgia. A recent review of these positions shows that most of these positions require or prefer a master's degree in sport management or a related field. Similar demand is seen in interscholastic sport. Recent data found that participation in high school sports in the U.S. reached an all-time high of 7,713,577 student-athletes during the 2012-13 school year (NFHS, 2013). In the state of South Carolina alone, there are 199 high schools and 170 middle schools. Each high school has 1-3 athletic administrators, and several of the middle schools have athletic administrators in place. In addition, most of the schools have 8-14 coaches are also employed as teachers within the school district. The proposed program will assist these teachers with increasing their personal knowledge base as well as benefit the students they teach everyday through enhanced intellectual capital as it relates to the contexts in which they teach. In order for these teachers and administrators to advance their careers in terms of pay structure and career path, a master's degree is necessary. The proposed program will better support these individuals in their career goals when compared to master's level programs outside of sport leadership.

The continued growth of sport at all levels indicates a steady demand for competent, well-trained sport managers. As South Carolina's economy grows both regionally and statewide, there will be an increased need for these managers. The statewide growth will create a need for managers who possess both experience and education in mid-management and upper-management positions. These type of positions list qualifications for prospective employees as "Master's degree preferred" or "Master's degree required".

The proposed program will provide needed opportunities for South Carolinians and/or current Coastal students to stay in-state to pursue graduate study in this discipline. Neighboring states currently have greater capacity to serve these students than does South Carolina. For example, North Carolina has six graduate sport management programs, Tennessee has eight, and Georgia has three. Comparatively, South Carolina has two masters programs (and one certificate program), with none being available in the eastern part of the state. Additionally, the need to

provide current Coastal students with in-state graduate program opportunities intersects with the institution's current profile of out-of-state students. For example, students from New York and Pennsylvania account for approximately 12% of CCU's enrollment (2012, *CCU Fact Book*). These two states have a high capacity for sport management graduate students with thirteen and twelve graduate sport management programs, respectively. On the other hand, New Jersey and Maryland, which provide Coastal with approximately 14% of its undergraduate enrollment (2012, *CCU Fact Book*) offer only one graduate program, combined, in Sport Management. Given the documented high undergraduate student interest in the proposed Coastal program, it is logical to assume that, with the increase in the state's capacity to serve students in this discipline, some of Coastal's out-of-state students would opt to remain in South Carolina for graduate study and contribute to the state's intellectual capital. The program may also attract South Carolina residents who now seek degrees in adjacent states with higher capacity (NC, TN, GA). Finally, given the recently approved USC-Columbia Ph.D. program in Sport Management, both USC and the state would seemingly benefit from an additional program that increases the potential pool of highly qualified South Carolina applicants for doctoral study in this area.

Centrality of Program to the Mission of Coastal Carolina University

The proposed program directly supports the mission of Coastal Carolina University. Specifically, the program contributes to the University's mission to offer "baccalaureate and selective master's programs of national/or regional significance." The program will support the mission in producing knowledgeable, productive and responsible graduates who can contribute to the economic development of the region. This results in a larger alumni base who will be prepared to positively impact the region and the profession.

Relationship of Program to Existing Programs at Coastal Carolina University

The Department of Kinesiology, Recreation and Sport Studies houses two programs with robust enrollments (Exercise Science & Recreation and Sport Management). The students in these majors may seek a higher level degree upon completion of their bachelor degree. Specifically, the Recreation and Sport Management Program has an undergraduate enrollment of approximately 330 students. Moreover, as proposed, the M.S. in Sport Management will likely interact with the existing graduate programs at Coastal Carolina University, most specifically the Master of Business Administration (MBA) and the Master of Education (M.Ed.) in Educational Leadership. This interaction will occur through shared coursework, as appropriate, and through the ability to individualize educational opportunities based on career goals within the business and educational sectors. For example, a sport management student who desires to work in the front offices (e.g. accounting, finance, payroll) of a minor league team may benefit from business coursework accessible in the MBA program taken as part of the elective requirements in the Sport Management program. Similarly, a student seeking to be a school principal and who is enrolled in the M.Ed. program might access a course in the sport management program in order to increase his/her knowledge of athletic leadership in education. Other areas of natural interactions could emerge in the areas of communication and media.

Listing of Similar Programs Within the State

Currently, five South Carolina public institutions offer an *undergraduate* major in the "Sport Management" CIP code (31.0504): USC-Columbia, Clemson, Coastal Carolina, The Citadel, and Winthrop. There are seven private colleges that have undergraduate programs in the discipline: Claflin, Coker, Erskine, Limestone, Newberry, North Greenville and Southern Wesleyan. There

are only three master's-level programs in sport management or sport administration: USC-Columbia, Winthrop, and The Citadel.

Relationship of Proposed Program to Existing Programs Within the State

The proposed program does not unnecessarily duplicate the available resources of other programs in the state. The curricular focus of the proposed program is unique when compared to the other graduate programs in South Carolina (see next section). Additionally, it will serve the eastern region of the state, which continues to be one of the fastest growing regions in South Carolina. The program may serve as a feeder program to USC-Columbia's new Ph.D. program in Sport Management. Likewise, the program will support and seek out inter-institutional relationships with the other programs in the state, as appropriate.

Similarities and Differences of Proposed Program to Other State Programs

USC-Columbia offers a "Master of Sport and Entertainment Management (MSEM)." The USC-Columbia program focuses on venue management (e.g. arenas, stadiums, amphitheaters) with an emphasis in event management of sport and entertainment productions. Winthrop University houses a M.S. in Sport and Fitness Administration/Management preparing individuals for fitness/wellness and sport/athletic administration positions. The program uniquely offers a focus in wellness/fitness management, as some of its curriculum is in the exercise sciences. The Citadel offers a M.A. degree in Sport Management through its 15-hour graduate certificate program in sales and marketing.

In comparison to other programs, the proposed program at CCU offers a more broad- based sport management curriculum applied to a variety of settings, which may be tailored by students to meet a range of career goals and advancement needs. For example, students who are interested in pursuing positions in sport marketing may take some courses in marketing offered by the business school in order to meet degree requirements as elective credits, as outlined in the curriculum. Similarly, for a student who is pursuing a position in athletic administration in the secondary school system, they would be able to take some courses in educational leadership through the college of education. These examples would met the career goals of the students as they relate to their own educational journey. The curriculum focuses on sport operations, fiscal management and leadership applied to the diverse job settings in the sport industry. This makes it distinctly different from the more specialized programs currently available in the state. As well, the proposed program is located in a geographically different region of the state and will provide a curriculum to meet the changing needs of the sport industry locally and in the region. Regionally, there are growing needs in the areas of sport tourism and sport administration in educational settings (intercollegiate & interscholastic).

V. Admission Criteria

Admission criteria for this program are similar to those for all other Master's programs as CCU. Candidates seeking admission to the M.S. in Sport Management program will submit the following materials:

1. Completion of application form and payment of application fee.
2. A Baccalaureate degree from an accredited institution or the equivalent at a foreign institution based on a four-year degree.
3. Official transcripts from each school or college previously attended.
4. Official GRE or GMAT scores; official TOEFL scores as applicable for international

students.

5. Three letters of recommendation, including at least one academic reference and one non-academic reference.
6. Resume/Vitae.
7. A personal statement of purpose that includes a description of career goals over the next 5 years, reasons for interest in the M.S. in Sport Management at Coastal Carolina University, and relevant experience and achievements.

Evaluation of Transfer Credit

After having completed all requirements for transfer admission, matriculated students will be given a statement of credits accepted for transfer by the University within the first semester of enrollment. Students from regionally accredited colleges and universities may transfer credit for academic courses completed with grades of B (meaning B or B+) or better, but the University reserves the right to determine what credit, if any, for courses taken elsewhere will be counted toward its degrees. A maximum of 12 transferable credits from any regionally accredited program will be applicable toward a Coastal Carolina University degree. Completion of transfer credits must be within the last 6 years.

VI. Enrollment

The initial program enrollment projection of an estimated 12 students during the first semester of operation is based on early enrollments of similar programs throughout the country. It is projected that the enrollment will continue to grow throughout the first 5 years and will operate as a self-sustaining program.

Projected Total Headcount (3 & 4)						
	Fall Semester		Spring Semester		Summer Semester	
Year	Total Headcount (1)	Credit Hours (2)	Total Headcount (1)	Credit Hours (2)	Total Headcount	Credit Hours
2015-2016	12	108	17	149	NA	NA
2016-2017	26	230	29	257	NA	NA
2017-2018	38	342	34	310	NA	NA
2018-2019	44	396	40	357	NA	NA
2019-2020	49	443	44	399	NA	NA

Table 2 Estimated New Headcount						
	Fall Semester		Spring Semester		Summer Semester	
Year	New Headcount (1)	Credit Hours (2)	New Headcount (1)	Credit Hours (2)	New Headcount	Credit Hours
2015-2016	12	108	6	54	NA	NA
2016-2017	12	108	6	54	NA	NA
2017-2018	12	108	6	54	NA	NA
2018-2019	12	108	6	54	NA	NA
2019-2020	12	108	6	54	NA	NA

Note 1: Based on enrollment of 12 new students each fall and 6 new students each
Note 2: Credit hours based on 9 hours per semester.
Note 3: First year total headcount based on 88% returning fall to spring and 82% returning spring to
Note 4: Years 2-5 headcount based on 80% graduation rate of returning students after Spring semester, 88% of students returning fall to spring and 82% of students returning spring to

Discussion of How Estimates Were Made

Several indicators suggest that demand for this program will be strong. First, in a September 2013 survey conducted by Coastal Carolina University's Office of Institutional Research, Assessment and Analysis, 238 current undergraduate students representing a cross-section of seven different majors responded, and 71.85% (n = 171) of the respondents indicated they would be interested in pursuing a master's degree program in sport management if it were available. Second, enrollment growth in the University's current undergraduate program in Recreation and Sport Management has been steady, growing to over 300 since its inception in 2005. Third, the overall growth (5.94%) of the sport industry nationally has attracted more students to the study of sport (U.S. Census Bureau, 2010). Approximately 2,000 potential students from the University's recruitment regions annually indicate interest in the fields of sport studies and the related fields of kinesiology. The growth in participation rates, combined with the continued growth of the sport industry, supports a future demand for trained individuals in sport management. With the above indicators, the M.S. Sport Management program should see steady enrollments.

The initial estimates for the size of the program are conservative in order to illustrate that the program will be financially successful even with relatively low enrollment numbers. Depending on the popularity of the program, enrollment numbers could be higher.

The estimated enrollment numbers are based on the following assumptions:

1. Recruitment pools will yield a steady influx of interest and new students to the program.
2. Student enrollment will increase over time.
3. Initial enrollment of 12 new students each Fall and 6 new each Spring.
4. Students will enroll in an average of 3 courses or 9 credit hours in both Fall and Spring semesters.
5. Summer school course offerings will be offered in summer when justified by student demand.
6. Students will usually complete the program in no less than 3 semesters.

Projected New Students

It is projected there will be some variance in enrollment levels. A majority of students will likely begin the program in the Fall semester; however, the program will allow admission into the program on a rolling basis, meaning a student could start during any semester once accepted into the program.

VII. Curriculum

The proposed Master of Science in Sport Management at Coastal Carolina University will require 36 graduate credit hours. As this degree seeks to provide a broad range of skills and experiences, the curriculum is divided into core coursework, elective coursework and a capstone experience.

Sport Management Degree: Master of Science

Students must maintain a 3.0 GPA and may not have more than two grades of "C'" in the program.

I. CORE CURRICULUM (24 Credits) 24

SPT 501 The Sport Industry 3
SPT 580 Research Methods in Sport 3
SPT 530 Leadership Theory and Application in Sport Settings 3
SPT 550 Facility and Sport Venue Operations 3
SPT 565 Revenue Generation and Fiscal Management in Sport 3
SPT 515 Legal Issues in the Sport Industry 3
SPT 510 Governance and Policy in Sport 3
SPT 560 Understanding Sport Fan Behavior 3

II. ELECTIVES (Aligned with Career Goal) 6-9
III. CAPSTONE: Research Thesis or Approved Internship 3-6

TOTAL CREDITS REQUIRED 36

New Courses

The following courses will be offered for the first time as requirements for the Sport Management Master's Degree program.

SPT 501 -The Sport Industry
This course is intended to provide students with an introduction to the field of sport management. Special emphasis is placed on the history of sport management, management constructs, organizational theory, levels of sport opportunities, and trends within the field. Students will be acquainted with issues through discussions of pertinent theories and through experiential studies of sport practitioners.

SPT 510-Governance and Policy in Sport
This course is designed to provide knowledge and awareness of the rules and laws governing various sport organizations as well their participants.

SPT 515-Legal Issues in the Sport Industry
This course is designed to introduce sport management students to legal principles so that they may deal with managerial situations that often arise in sport industry settings. The course will be based around traditional legal theories as applied to managerial functions: (1) human resource management, (2) operations management, and (3) marketing management.

SPT 530- Leadership Theory and Application in Sport Settings
This course is designed to provide students with an overview of contemporary organizational leadership theories and concepts. Special emphasis will be on effective leadership principles and practices applicable to the sport management profession. Students will analyze topics such as leadership theory, motivation, organizational communication, conflict management, organizational culture, strategic planning, and professional ethics.

SPT 550-Facility and Sport Venue Operations
This course is designed to provide the student with an overview of the fundamentals of the planning, designing, constructing and managing of sport and entertainment facilities and venues. This course aims to develop practical competencies necessary to effectively manage sporting facilities and events. The course is a combination of theoretical discussions and hands-on practical experience.

SPT 560-Understanding Sport Fan Behavior
This course is intended to provide students with comprehensive coverage of sport consumer behavior with an emphasis on theory development, review of research, and marketing applications. Special emphasis is placed on various models and paradigms relevant to sport consumption behavior.

SPT 565-Revenue Generation and Fiscal Management in Sport
This course is designed to examine both economic and fiscal theories as they are applied to the sport management industry. Various economic and fiscal issues will be explored with a focus on making effective fiscal decisions.

SM580- Research Methods in Sport
This course is designed to provide students with the appropriate skills and perspectives to conduct effective research on problems facing the decision-makers in the sport industry. Basic methodological approaches to research, how to use data tools and programs commonly used in a business and/or research setting, and how to analyze data using basic statistical techniques common in sport management research will also be discussed.

SPT 590- Graduate Internship
After successful completion of the internship, students will have had a leadership opportunity through relevant work experience. Internships are approved with local, national or international organizations and include all field specializations. Position descriptions are based on the needs of the cooperating organization.

SPT 599- Research Thesis
After successful completion of the thesis, students will have designed, implemented, and presented, both orally and in writing, an original research project. Specifically, the student will have delineated a research topic; conducted a comprehensive review of the literature; developed appropriate methodology for investigating a topic; collected and analyzed data; interpreted the results; and made recommendations. The course serves as a culminating activity via a manuscript and an oral presentation.

VIII. Assessment

By offering a M.S. in Sport Management, Coastal Carolina University will continue to serve the community by providing a high-quality educational experience for students and by producing graduates who contribute to society and economic development in the region. The program will perform continuous assessment of student learning outcomes as well as routinely assess the program.

Student Learning Outcomes (SLO's)

A variety of student learning outcomes will be assessed. Assessment of these outcomes will come from a variety of sources outside of normal graded material. For example, the comprehensive exam is a capstone exam that will occur outside of any class requirement and assess a student's overall comprehension of how various core concepts apply in real-world settings. The portfolio is also a cumulative project that pulls material from various coursework and experiences in order to provide evidence of industry-related skills.

Student Learning Outcomes Students will be able to:	Assessments	Data Collection Point
Work in a variety of sport settings	Portfolio Comprehensive exam	SPT 590
Utilize critical thinking skills to analyze controversies and issues in sport management settings	Exams Writing assignments	SPT 510
Display an understanding of the issues and principles of law as they apply to sport settings through both written and verbal communication	Exams Case Briefs	SPT 515
Effectively recognize and discuss the effectiveness of strategies used by sport organizations when developing managerial strategies related to overall organizational success	Field observation Exam	SPT 530 SPT 560
Develop students' understanding of revenues generation and fiscal management strategies used to maintain or improve facility and venue operations	Exams Special applied project	SPT 565
Develop students' understanding of basic management strategies used to maintain or improve facility and venue operations	Exams Special applied project	SPT 550
Convey information through written communication techniques	Written project	SPT 580
Express information through oral communication techniques	Research Presentation	SPT 580 SPT 590 SPT 599

Evaluation methods at the course level include evaluating two sources from appropriate classes; in addition, exam questions, assignments, and course surveys may be used. Department-level evaluation methods include a written comprehensive exam at the end of the student's graduate coursework. Because we have a set assessment schedule (specific SLOs are scheduled to be measured each year), we have opportunities to make modifications in our program after our analysis and evaluation, yet before the next data collection cycle.

Program Assessment Plan:

The department will assess the program on an annual basis at the end of each academic year. The initial program assessment will include the following:

1. Review of effectiveness of recruiting methods and review of recruitment pools.
2. Review of admission criteria, particularly scores and written materials.
3. Review of student evaluation of the program provided by students at the completion of the degree program.
4. Post-graduation employment trends.

The assessment committee will review data annually and report findings to the program faculty as well as to the University Assessment Committee for review. In addition, the program will use the findings to assess and recommend any program changes that may improve the overall quality and operation of the program.

IX. Faculty

The program currently has six full-time tenured or tenure track faculty and one full time lecturer to support the undergraduate program. The addition of the Master of Science in Sport Management program will necessitate the hiring of two new faculty, one of which will be necessary prior to the start of the program with the second hire occurring in year two of the program.

List Staff by Rank (e.g. Professor #1, Professor #2, Associate Professor #1, etc.)	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Associate Professor #1	Ph.D.	Sport Management	Yes
Associate Professor #2	Ph.D.	Recreation Management	Yes
Assistant Professor #1	Ph.D.	Recreation Management	Yes
Assistant Professor #2	Ph.D.	Sport Management	Yes
Assistant Professor #3	Ph.D.	Sport Management	Yes
Assistant Professor #4	J.D.	Sport Management	Yes
New Hire #1	Ph.D.	Sport Management	Yes
New Hire #2	Ph.D.	Sport Management	Yes
Lecturer #1	Ph.D.	Recreation Management	Yes

Necessary Qualifications of New Faculty

The new graduate program will designate graduate teaching faculty as outlined in CCU's Faculty Manual from both qualified existing and new faculty members. New faculty hires should possess a Ph.D. in the area of sport management with academic and practical experience in sport marketing, sport governance, sport information and/or sport facility management. The enrollment and curricular projections of this program will necessitate approximately 36 new credit hours of graduate instruction per year. This load will be covered by existing and new faculty members who will teach in both undergraduate and graduate programs. With the FTE equivalent of a CCU faculty member at 21 credit hours per year, this program will need to hire two new faculty members in the first two years of the program. One faculty member will be designated as "Director" at a reassigned load of 1 course release each semester. These additional faculty lines have been accounted for in the budget for this program. Any future hires will be based upon student demand for the program.

Explanation of Proposed Changes in Assignment

One member of the faculty will be designated as "Director of the Masters of Sport Management Program" and be reassigned one course release per semester to recruit, retain, promote, and advise graduate students, as well as fulfill the duties of scheduling courses, assisting the department chair and dean with budget and resource management, and designating graduate teaching loads. Additional administrative support will also be necessary to assist with the new program, which may be fulfilled by upgrading a current part-time position.

Institutional Plan for Faculty Development

The University promotes professional development and growth through an ongoing process involving all faculty, and this will apply to the new M.S. in Sport Management. The Office of the Provost and Senior Vice-President for Academic Affairs oversees travel, reassigned time, small grants, and community service opportunities. Grants made available through the Office of the Provost include: Professional Activities Travel Mini-Grants, Academic Enhancement Grants, Assessment Mini-Grants, and Proposal Writing Grants. Support for faculty travel for presentation at professional conferences is available from the College of Science. Scholarly activities are also supported by the Office of the Vice-President for Research, providing pre- and post-award support services for faculty seeking external funding.

Institution's Definition of Full-time Equivalents

Every 21 credit hours taught during the academic year is equivalent to one Full-Time Equivalent (FTE).

Unit Administration, Faculty, and Support Table

The following table identifies the minimum number of administration, faculty and staff that will be necessary to support the program within the first 5 years.

YEAR	NEW		EXISTING		TOTAL	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2015-2016	1	0.25	0	0.00	1	0.25
2016-2017	0	0.00	1	0.25	1	0.25
2017-2018	0	0.00	1	0.25	1	0.25
2018-2019	0	0.00	1	0.25	1	0.25
2019-2020	0	0.00	1	0.25	1	0.25
Faculty						
2015-2016	0	0.00	7	2.00	7	2.00
2016-2017	1	0.50	7	2.50	8	3.00
2017-2018	0	0.00	8	3.00	8	3.00
2018-2019	0	0.00	8	3.00	8	3.00
2019-2020	0	0.00	8	3.00	8	3.00
Staff						
2015-2016	0	0.00	1	0.33	1	0.33
2016-2017	0	0.00	1	0.33	1	0.33
2017-2018	0	0.00	1	0.33	1	0.33
2018-2019	0	0.00	1	0.33	1	0.33
2019-2020	0	0.00	1	0.33	1	0.33

X. Physical Plant

Explanation of the Proposed Program's Effect on the Physical Plant's Ability to Support the New Program

The M.S. in Sport Management will be housed in the Williams-Brice Building. This building has four dedicated classrooms and one lab space. Other facilities that will be used to support the program include classrooms in Kearns Hall and Swain Hall, and all athletics facilities, including the box office, in support of instructional activities. The program will initially be able to function in the space listed above.

Discussion of Additional Physical Plant Requirements

The proposed M.S. in Sport Management program requires no initial additional physical plant requirements. However, to provide optimal instruction, the program and its students would greatly benefit from an additional dedicated conference room and multipurpose lab space to provide for and meet the educational needs of students, as well as to keep up with industry standards. Any further changes will be dictated by growth in enrollment.

XI. Equipment

The Department of KRSS has one general computer lab that supports the KRSS department. This lab has 15 computers equipped with Windows operating system. In addition, the University will need to acquire specialized equipment in order to support the program. This equipment includes 16 additional computer systems (8 Mac, 8 PC) with specialized software that supports SPSS, advanced ticketing systems, Adobe Photoshop, and video editing systems. In addition, video equipment will be needed, including 3 HD TV flat screen monitors (42 inch minimum), 3 video cameras, an HDXD cam drive, one Ross vision video switcher and a Soundcraft sound deck. The research, fan behavior, facility management and event class will need to stay up-to-date with how iPads are integrated into these professional areas, resulting in the need for 12 iPads for student use. Other additional equipment which will be utilized to support the program includes a phone bank with 16 phone stations and 2 laser printers. As proposed, the cost of equipment for the first 3-5 years is $34,699.68. For general-purpose computing needs, students in the department are required to have access to personal laptop computers. Customized software environments suitable for system administration exercises can be deployed on these laptops using freely available virtualization software. As a result, the department is in some cases able to leverage students' own devices in order to ensure access to the technologies required in the classroom. Students will need access to lab equipment in support of industry-specific programs.

Course Usage	Equipment	Quantity	Cost (per unit)	Total	Source
General Program Equipment	Mac Pro	8	1,299.00	10,392.00	Apple.Com
General Program Equipment	One in One computer (PC)	8	749.00	5,992.00	Amazon.com
Research, Sport Venue operations, Revenue Generation, Fan Behavior	iPad	12	399.00	4,788.00	Apple.com
General Program	Laser Printer	2	529.00	1,058.00	Amazon.com

Course Usage	Equipment	Quantity	Cost (per unit)	Total	Source
Equipment					
Leadership, Facility, Sport Venue, Issues In ICA, Brand Communication & Media	42 in. HD TV	3	380.00	1,140.00	Amazon.com
Media, Special Topics & Research	HD XD Camera	3	1,950.00	5850.00	Sony.com
Media, Special Topics And Research	HD XD Cam Drive	1	100.00	100.00	Sony.com
Media, Special Topics	Ross Vision Switcher	1	999.00	999.00	Amazon.com
Media	Soundcraft Sound Deck	1	1,599.00	1,599.00	Amazon.com
Revenue Generation, Research	16 Phones	16	22.98	397.68	Amazon.com
General Program support (several courses)	Adobe Photoshop Elements and Premiere	16	149.00	2,384.00	Amazon.com
	Total			$34,699.68	

XII. Library

Effect of the Proposed Program on the Library's Ability to Support the Program

Quantitative Analysis of Library Holdings

Monographs
Kimbel Library holds 430 monographs in support of sport management. Most of this collection is in print format with an average publication date of 2000 and an overall average publication date of 2005.

Twenty-three subject areas and corresponding Library of Congress (LC) call number ranges were identified for the M.S. in Sport Management program. A general subject of Sport Management was included to cover topics relevant to sports management. Films included here are in DVD format; the library provides access to a wide collection of streamed video content, which is addressed below.

Serials
Kimbel Library's serial holdings were examined in *Ulrich's Serials Analysis System*, which compares our total periodical holdings with a recommended core list of periodicals for academic libraries. Online access to periodicals is provided via aggregator databases, publisher packages, open access titles, and direct online subscriptions. Kimbel Library provides access to 155 print and online-accessible periodicals relevant to the proposed program. Of these, 110 (70%) represent core journal titles in the general subject of sports. Overall, Kimbel Library provides

access to 31% of all core journal titles in sports. Specifically, the library provides access to 66% of the core titles in sport economics, 69% of core title in game theory, and 59% of core titles in sport law. Additionally, serial holdings were compared to essential and recommended titles indicated in "Library Collections for the Support of Academic Sport Management Programs" (Sphar). Of 23 recommended journal titles, Kimbel Library provides access to all but three.

Qualitative Analysis of Library Holdings

Use

Use of the monograph collection was derived from circulation statistics available through the library's integrated system. Of 340 *physical* titles (excluding ebooks), 90 (26%) titles have no circulation incidents, 98 have 1-2 circulation incidents, and 154 titles have 3 or more circulation incidents, up to 23 or more uses for 4 titles. High use subjects are college sports, sports marketing, doping in sports and careers in sports. In the last calendar year, 45 (13%) of these titles were checked out from the library, and approximately half of the collection circulated within the last five years.

Age of Collection

The average publication date of the monograph collection is 2005 and 2000 for print titles, which make up 74% of the collection. This reflects a relatively new collection for Kimbel Library, which has an average publication date of 1982 and a median of 1986 for all subjects. The average age for physical titles with recent use (2009-2014) is 2001, and 1999 for titles with higher use (3+ circulation incidents).

Core Titles

A qualitative comparison of Kimbel Library's holdings relevant to sports management was conducted using Bowker's Book Analysis System. This collection tool compares current library holdings against a core list of monographs recommended for academic libraries by subject bibliographers. Comparison with such a list controls for age of collection held by peer libraries and offers a standard by which any library's holdings may be measured.

The library holds approximately 30% of all core titles relevant to sports administration, above average for the library's print collection in all subjects (21%). A few subjects have few core titles as a percentage of 1) available core titles or 2) as a percentage of titles held in the subject area.

Estimate of Acquisitions Needed

Kimbel Library owns approximately 430 titles in sports administration. Of these, 30% are considered "core" titles for an academic collection, and the collection is relatively current. Eight areas of the collection are of interest due to the paucity of core titles held and the number of core titles available. The estimate of need focuses on these areas, as the remaining subjects are well-represented in the collection and will have continued support through anticipated annual library allocations for this program. Still, the successful use of the statewide higher education electronic library (PASCAL) does serve to mitigate some of these thinly-supported areas.

The actual cost of core titles not held in areas of need is $9,130 (based on 2013 prices.) The Library realizes that acquisition of all core titles not held is based on an ideal collection; however, the numbers reported above are to be considered benchmarks to guide acquisition activities. The departmental faculty may wish to adjust these figures based on curricular needs.

Kimbel Library anticipates a cost of $9,130.00, or $1825 per year for five years, based on the actual cost of core titles not owned for monographic acquisitions. The allocation is based on the resources currently available and may change accordingly. The existing Recreation and Sport Management major will also contribute to the support of future acquisitions.

Journal subscriptions are an ongoing cost. The average cost of sports/recreation journals in 2013 was $539, with an average annual increase of 8%. The library provides access to all but three recommended journals and subscribes to 30% of core journals in this field. At minimum, the library should anticipate increased journal costs of $1,600 per year for ongoing support of the proposed program, or $3425 per year for the next five years for materials in both formats. In addition, the University will want to consider subscribed access to *ProQuest Dissertations and Theses (Full Text)* to support the research component of this program.

XIII. Accreditation, Approval, Licensure or Certification

Discussion of the Impact on Program Accreditation

The program's curriculum is aligned with current content standards outlined by The Commission on Sport Management Accreditation (COSMA). COSMA is the only specialized accrediting body that promotes and recognizes excellence in sport management education. The purpose of the COSMA is to promote and recognize excellence in sport management education through specialized accreditation. The accreditation is optional, but once the program is established, Coastal Carolina University will likely seek accreditation through the Commission on Sport Management Accreditation (***COSMA***). Achievement of this accreditation will allow for further program assessment and provide an additional element of quality for the program. After the third year of the program, pursuit of accreditation will require $1,800 per year in membership dues and an accreditation fee of $3,500 for a three-year accreditation. Costs for this new program will be covered by tuition generated by the program.

XIV. Articulation

Coastal Carolina University is interested in developing cooperative relationships with other institutions in the state. This includes graduates of the proposed program matriculating into the newly approved Sport, Events and Hospitality doctoral program at the University of South Carolina or other programs that may exist in the future. The current Recreation and Sport Management faculty have established a record of collaborative work with other individuals and programs throughout the state, and this is expected to continue.

XV. Estimated Costs and Sources of Financing

The addition of the Master of Science in Sport Management will require two new faculty hires. In addition, the administrative function of the unit will need to be increased. The need for administrative support is, in part, related to the rapid growth of the home department of Kinesiology, Recreation and Sport Studies at the undergraduate level (highest departmental enrollment at CCU with nearly 1,000 students). With the addition of a graduate program, administrative support will need to be augmented with a .33 hire.

Costs to the Institution and Sources of Financing - Sport Management						
Estimated Costs by Year						
Category	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Totals**
Program Administration (1)	$18,926	$19,232	$24,232	$30,532	$38,471	$131,393
Faculty Salaries (2)	$151,606	$191,024	$240,690	$303,269	$382,119	$1,268,708
Graduate Assistants	$10,000	$20,000	$20,000	$20,000	$20,000	$90,000
Clerical/Support Personnel (3)	$11,180	$14,087	$17,750	$22,365	$28,180	$93,563
Supplies and Material	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000
Library Resources	$3,425	$3,425	$3,425	$3,425	$3,425	$17,125
Equipment	$6,940	$6,940	$6,940	$6,940	$6,940	$34,700
Facilities						$0
Other						$0
Totals	$204,078	$256,708	$315,037	$388,532	$481,135	$1,645,489
Sources of Financing by Year						
Tuition Funding (all students)	$173,055	$327,743	$439,063	$506,736	$566,288	$2,012,885
Program-Specific Fees						$0
State Funding						$0
Reallocation of Existing Funds	$31,023					$31,023
Federal Funding						$0
Other Funding						$0
Totals	$204,078	$327,743	$439,063	$506,736	$566,288	$2,043,908

Notes:
(1) Program administration based on .25 of Director's salary plus 24% fringe for year one. Years 2-5 are based on a 2% increase.
(2) 24% Fringe Benefits included with faculty salaries. Years 2-5 are based on a 2% increase.
(3) Clerical/Support salary includes 24% fringe for year. Years 2-5 are based on a 2% increase.

Statement about Unique Costs or Other Special State Appropriations

Tuition fees are estimated to cover the cost of this new program. The proposed M.S. in Sport Management program has no unique costs or other special state appropriations associated with it. No funding will be requested from the state.

Information Regarding Estimated Program Costs

Program costs are covered by students' tuition payments. Estimates indicate a potential for sustained growth over the first five years of the program. The program will be self-sustaining within the first five years.

South Carolina
Commission on Higher Education

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Dr. Richard C. Sutton
Executive Director

CHE
2/5/2015
Agenda Item 8.02.B1-2

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne and Members, Committee on Academic Affairs and Licensing

Analyses of Two Program Modifications

Attached are the executive summaries and proposals for two program modifications for consideration at the February 5, 2015, meeting of the S.C. Commission on Higher Education.

Please do not hesitate to call Dr. MaryAnn Janosik, Director of Academic Affairs, at 803-737-3921 should you have any questions or concerns about the summaries or recommendations.

Enclosures

Program Modification Proposal
M.D., Addition of Clinical Program Offering Site in Florence, SC
University of South Carolina

Summary

The University of South Carolina requests approval to offer the M.D. program at a new clinical site in Florence, SC, for third and fourth year medical students, to be implemented in July 2015. The proposed program is to be offered through traditional and online instruction. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	Not Applicable	Not Applicable
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	Dr. MaryAnn Janosik asked USC representatives to confirm that only third and fourth year medical students would study at the proposed site. Dr. R. Caughman Taylor, Interim Dean of the School of Medicine Columbia, stated that the impetus for adding the proposed site is to attract physicians to the Pee Dee area and he confirmed that the proposed site will be for a limited number of third and fourth year medical students. He explained the differences between the plans for the proposed site and what occurred with the medical school site in Greenville. According to Dr. Taylor, “there are no plans to expand” at the proposed site because the state is currently graduating a sufficient number of medical students (approximately 400 per year). ACAP members voted to approve the proposed modification.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested that the proposal be revised to include information about the consultation site visit conducted by the LCME Secretariat on May 27-28, 2014, as well as include the information presented by Dr. Taylor at the ACAP meeting.
Revised Program Proposal Received	12/2/14	The revised proposal satisfactorily addressed all of the requested revisions.

Stages of Consideration	Date	Comments
CAAL Consideration	1/8/2015	Commissioners discussed the need for the proposed clinical site. Dr. Taylor explained the need to train physicians in underserved areas as studies show that physicians tend to practice in the areas in which they study. He also stated that the site could help attract already practicing physicians and specialists to the Pee Dee Area. Dr. Horne asked Dr. Taylor to confirm that the site would only be available for third and fourth year medical students. Dr. Taylor reiterated that there are no long-term plans to expand instruction at the site. He explained that with the medical schools at MUSC and USC (Columbia and Greenville) as well as the DO school, the state is producing sufficient graduates to meet the demand for new doctors. Commissioners also asked about possible collaboration with MUSC. Dr. Taylor explained the ways in which the two institutions currently collaborate. Commissioner Munns expressed concern about the amount of money needed to support the site. Dr. Taylor explained that the costs are the result of the LCME requirement that clinical sites provide the same services offered at the main campus.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program modification to offer the M.D. program at a new clinical site in Florence, SC, for third and fourth year medical students, to be implemented in July 2015.

Committee Member Questions and CHE/Institutional Responses:
University of South Carolina Columbia, M.D., Addition of clinical site in Florence

QUESTION: Cost.... Please explain the projected incremental cost of $1.4M a year for 12 students. The proposal states there will be no growth in student enrollment, presumably the USC program currently has management, facility and resources to cover the cost of clinicals; why then is there a need to grow management and to expend additional dollars beyond the current program?

INSTITUTIONAL RESPONSE: The LCME requires clinical locations to have management, facilities, and resources comparable to those available at the campus offering the medical degree. It would be incorrect to assume that USC has the management, resources and facilities to cover the cost of clinical rotations in Florence. The bulk of the budget goes to pay for preceptors in Florence which we do not pay for in Columbia. All of the preceptors in Florence are in private practice or are employees of the hospital, and thus expect payment to teach our students.

University of South Carolina-Columbia
School of Medicine
Program Modification
Addition of Clinical Program Offering Site in Florence, SC
May 21, 2014

_____
Harris Pastides, Ph.D.
President

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Classification

Program Title:	Clinical Program Offering Site in Florence, SC
Academic Unit:	School of Medicine
Type of Degree:	M.D.
Proposed Date of Implementation:	July 1, 2015
CIP Code:	51.1201
Site:	Florence, SC
Qualifies for Scholarship Awards:	No
Delivery Mode:	On-site and Distance Education

Institutional Approval

School of Medicine Executive Committee:	May 6, 2014
USC Health Affairs Committee of the Board of Trustees:	June 12, 2014
USC Board of Trustees:	June 20, 2014
Liaison Committee on Medical Education:	March 12, 2014
CHE Advisory Committee on Academic Affairs:	October 16, 2014

Purpose

The University of South Carolina School of Medicine proposes to modify our current program of study to allow a small number of third and fourth year medical students to complete their clinical training in Florence, SC. On October 2, 2008 the CHE approved a memorandum of understanding that created the Pee Dee Health Education Partnership that brought together the University of South Carolina, Francis Marion University, McLeod Regional Medical Center and Carolinas Hospital System for the expressed purpose of addressing the shortage of health care professionals in the Pee Dee. This program modification is a direct outcome of that partnership.

The program modification would entail approximately 12-15 third year medical students after completing their first two years of medical school in Columbia moving to Florence to complete their third and fourth year clinical rotations. This would include all six required third year clerkships (Family Medicine – 6 weeks, Internal Medicine/Neurology – 12 weeks, Obstetrics-Gynecology – 6 weeks, Pediatrics – 8 weeks, Psychiatry – 6 weeks, Surgery – 8 weeks) along with a required acting internship in their fourth year and at least 22 weeks of electives.

The objectives of this proposed program modification would be to allow our students exposure to the practice of medicine in a small community setting in an underserved part of the state, to introduce them to a potential practice community, to highlight the positive impact that community physicians make as role models, and to continue to meet our mission to improve the health of the citizens of South Carolina.

Justification

Establishing clinical rotations in underserved regions has proven to be an effective method of demonstrating to students the regional opportunities and the demand for healthcare professionals. The relocating of Columbia based medical students to the Pee Dee region will provide ample clinical training and exposure to the Pee Dee community while providing the opportunity to meet that regions demand and need for healthcare professionals. Almost the entire Pee Dee region is designated as a Medically Underserved Area, Health Professions Shortage Area, or both. With its documented health disparities as compared to other portions of the state and its shortage of physicians the Pee Dee provides an excellent source of clinical material for our students. That coupled with two large healthcare systems (Carolinas Hospital System and McLeod Regional Medical Center) will ensure our students exceptional clinical training sites and resources.

Having medical students based in the Pee Dee region will help to elevate the medical care already provided by attracting new services and specialties along with physicians interested in participating in medical student education. By living and working in the Pee Dee region these students are more likely to return to the area once they finish their training to practice.
Support for the creation of this clinical training site is quite strong including the Pee Dee legislative delegation, the mayor and city council of Florence, the two healthcare systems, local philanthropic groups, and the administration of Francis Marion University all of who have pledged money, time and resources to make this clinical training site a reality. Likewise the opening of a clinical rotation site in Florence supports the ongoing mission of the University of South Carolina in the education of the state's citizens through community engagement. Simply by educating medical students in Florence we will bring together disparate elements of the community, including the competing healthcare systems, for the betterment of the citizens of the Pee Dee region. We hope our presence will serve as a catalyst for increasing the number of physicians choosing to practice in the area. More physicians means more access to care in this underserved portion of the state.

It is also important to note the differences between the Greenville site and this current program modification in Florence. The Greenville site was established over 20 years ago and already had a number of post-graduate residency training programs when medical students initially started there. It took two decades for the Greenville Hospital System to amass the resources necessary to expand their program. In the past few years with the students in Greenville and the osteopathic medical school in Spartanburg, the number of medical students in the state has grown considerably.

The clinical offering site in Florence does not seek to increase the number of medical students in the state and will be based in an area of South Carolina with considerably less resources and only one post-graduate residency training program. The School of Medicine has no plans to increase the size of the class or to establish anything other than a clinical offering site to train our students.

Enrollment

The proposed program modification will have no impact on current student enrollment. The Liaison Committee on Medical Education (LCME) currently approves the USC School of Medicine – Columbia for 100 students per class and we have no plans to increase student enrollment at this time. Students rotating in Florence, SC will be a small segment of the current class size. We anticipate sending 12-15 students per year to Florence for their third and fourth year clinical rotations which when fully implemented will place a total of 24-30 students in Florence at any one time.

Curriculum

The LCME requires that training at clinical offering sites be equivalent to the experience at the main campus. Thus there will be no curricular changes with this proposed program modification. Students will be required to complete the same required clinical clerkships that they would in Columbia. Initially, some of the required didactic content (2-3 hours/week) will be delivered by videoconference with our students in Columbia, with the expectation that this content will eventually be delivered in person by our faculty in Florence.

New courses in the form of four-week clinical elective experiences will be developed in Florence for students at either site to take. None of these clinical electives are part of the core curriculum and students are able to freely choose among the offerings to round out their medical education.

Faculty

The School of Medicine has recruited a new full-time Assistant Dean for Medical Student Education – Florence who will be based in Florence and oversee medical student education. It is anticipated an additional full-time faculty member will be hired to oversee student affairs/student services for students at the clinical offering site.

Physicians will be recruited from Carolinas Health System, McLeod Regional Medical Center, and the surrounding community who will serve as clinical faculty for our students. It is anticipated that 35-40 new clinical faculty will be used to educate students at the clinical offering site in Florence. These physicians are either in private practice or employed by the hospitals and will be paid a small stipend as recompense for them volunteering to teach and have students in their clinical practices. An additional stipend will be paid to six physicians in each of the core specialties to serve as specialty specific rotation directors.

Physical Plant

A temporary Office of Medical Student Education has been established by the School of Medicine in Florence in space donated by the City of Florence. It includes faculty office space, a reception area, and a conference room suitable for lectures and videoconferencing. Most of the instruction will take place in the clinical facilities of McLeod Regional Medical Center and Carolinas Hospital System.

In addition Francis Marion University (FMU) has obtained 15 million dollars in funding from the State of South Carolina, the City of Florence, and the Drs. Bruce and Lee Foundation. These funds will make possible the construction of a medical and health sciences complex in downtown Florence. The FMU Medical and Health Sciences facility will consist of a three-story

building of approximately 45,000 to 50,000 square feet. The third floor of the building will provide space for instruction, simulation and computer labs, student lounge, conference rooms, and permanent offices for the Office of Medical Student Education – Florence. Construction is expected to begin in late 2014 and to be completed by mid-2016.

Francis Marion University is offering to share this space with the School of Medicine in an effort to bring health professions education for its nurse practitioner and physician assistant programs along with our medical student program all under one roof. This will not only allow for the sharing of facilities such as a clinical simulation lab, but also to be able to take advantage of the close proximity to offer interprofessional education instruction between the three disciplines which is now at the forefront of health professional education.

Equipment

No major equipment is anticipated to be needed for this program modification other than what may be needed to up fit a clinical simulation lab in the building described in the Physical Plant section that would be shared with other health professions students from FMU. This would include exam tables, medical examination equipment, clinical stimulation trainers, and video recording equipment to record and assess student performance.

Library Resources

We anticipate our current library resources will be sufficient to support this program modification with an increase in site license user fees to cover the additional faculty using the library resources. Students in Florence will have full access via the Internet to all electronic information resources from the School of Medicine Library. In addition these resources will also be made available to our new clinical faculty in Florence. Through a cooperative arrangement with FMU, students will also have full access to its library which houses a collection of over 415,000 volumes and over 21,000 e-journals, 55,000 e-books, and 101 electronic databases. McLeod Regional Medical Center also has a Health Sciences Library with a full-time librarian to assist students in their research and provides convenient computer access. Likewise Carolinas Hospital System has electronic library services available to students. The School of Medicine already has access to PASCAL which is available for use by our students and faculty.

Accreditation, Approval, Licensure, or Certification

The School of Medicine currently has a full 8-year accreditation through the Liaison Committee on Medical Education (LCME) until 2017. In response to our request for consideration of a clinical offering site in Florence, the LCME in a letter dated to the School of Medicine on March 12, 2014 "determined that the resources appear adequate." A consultation site visit with the LCME Secretariat was conducted on May 27-28, 2014 and reconfirmed the finding of the March 2014 letter regarding adequacy of resources. The next full survey of our program is scheduled for the 2016-2017 academic year. Graduates of the School of Medicine who complete their third and fourth year clinical rotations in Florence would not be affected in their ability to obtain a medical license as the clinical rotations in Florence would come under the purview of our general accreditation by the LCME.

Estimated Costs and Sources of Financing

The South Carolina Department of Health and Human Services (SC DHHS) and FMU have signed a contract (effective date of November 15, 2013) that provides funding for the clinical offering site in Florence. The contract, which is renewable, allows FMU to sign a subcontract with the University of South Carolina School of Medicine. The subcontract provides the following allocations for the clinical offering site in Florence:

FY	Fixed Costs	Preceptor Stipends
2013-2014	$270,000	
2014-2015	$885,000	$230,000
2015-2016	$1,000,000	$415,000
2016-2017	$1,000,000	$415,000
2017-2018	$1,000,000	$415,000
2018-2019	$1,000,000	$415,000

Table I – Costs to the Institution and Sources of Financing

ESTIMATED COSTS BY YEAR (2014 – 2019)						
CATEGORY	1ST	2ND	3RD	4TH	5TH	**TOTALS**
Program Adm.[1]	312,000	318,240	324,605	331,096	337,719	1,623,660
Faculty Salaries[2]	230,000	675,000	695,000	695,000	695,000	3,230,000
Clerical Person.[3]	150,000	153,000	156,061	159,181	163,363	781,605
Supplies	65,000	65,000	65,000	65,000	65,000	325,000
Library Res.[4]	5,000	5,000	5,000	5,000	5,000	25,000
Equipment[5]	24,000	28,000	28,000	26,000	25,000	131,000
Facilities	30,000	0	0	0	0	30,000
Food[6]	25,000	25,000	25,000	25,000	24,000	124,000
Travel	20,500	24,500	24,500	24,500	24,500	118,500
Housing[7]	256,000	32,000	32,000	32,000	32,000	144,000
Accreditation [8]	20,000	20,000	20,000	20,000	14,750	94,750
TOTALS	1,137,500	1,345,740	1,375,166	1,382,777	1,386,332	6,627,515
SOURCES OF FINANCING BY YEAR						
State Funding	1,115,000	1,415,000	1,415,000	1,415,000	1,415,000	6,775,000
Tuition	120,000	120,000	240,000	240,000	240,000	960,000
McLeod RMC	36,000	36,000	36,000	36,000	36,000	180,000
TOTALS	1,271,000	1,571,000	1,571,000	1,571,000	1,571,000	7,915,000

The estimated number of students in the first year would be 12 and be expected to grow to 15 students per class by the third year of the program for a total of 30 students (third and fourth year students combined). The estimated program costs will be funded predominantly through a state contract with the South Carolina Department of Health and Human Services. Additional funding will be provided by McLeod Regional Medical Center for services provided by one of the Florence faculty members. A portion of student tuition will also be available to provide additional resources if necessary.

[1] Assistant Dean for Medical Student Education-Florence and Student Services staff member
[2] Physician preceptors and clinical rotation directors
[3] 2 administrative assistants and 1 finance manager
[4] User fees to provide electronic resources for clinical faculty
[5] Simulation Lab: Exam tables, medical exam equipment, simulation trainers
[6] Meals for student meetings, travel for faculty to professional meetings, student mileage
[7] Rented apartment housing for students on short term clinical rotations
[8] LCME accreditation, AAMC fees, LCME consultation fee

Program Modification Proposal
Bachelor of Science in Industrial Engineering
South Carolina State University

Summary

South Carolina State University requests approval to transition the B.S. in Industrial Engineering Technology into a B.S. in Industrial Engineering, to be implemented in Fall 2015. The proposed program is to be offered through traditional instruction. The South Carolina Code of Laws currently contains a provision which states that the Category B licensure for Professional Engineers for which engineering technology graduates are currently eligible will cease to exist as of July 1, 2020. As a result, graduates of Engineering Technology programs will no longer be able to be licensed as Professional Engineers. South Carolina State University is modifying its program so that graduates remain eligible for licensure. The following chart outlines the stages for approval of the proposal; the Committee on Academic Affairs and Licensing (CAAL) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	Not Applicable	Not Applicable
Program Proposal Received	9/15/14	Not Applicable
ACAP Consideration	10/16/14	Dr. W. Franklin Evans from SCSU and Dr. Jeffrey Priest from USC Aiken described the ways in which they might collaborate such as sharing courses and faculty working on joint projects. ACAP members voted to approve the proposed modification.
Comments and suggestions from CHE staff sent to the institution	10/28/14	Staff requested several revisions, including the following: • A clear statement describing the impetus for the change (i.e., that the existing law contains a provision which states that the Category B licensure for which engineering technology graduates are currently eligible will cease to exist as of July 1, 2020). • An explanation of the overall transition or phase-out plan for the existing program. • Additional information about why the proposed modification is expected to create an increase in enrollment and a smoother connection to the examples provided for Nuclear Engineering and Civil Engineering Technology • A discussion of the curricular changes

Stages of Consideration	Date	Comments
		necessary to move the program from Industrial Engineering Technology to Industrial Engineering. • The identification of any library resources required as a result of the proposed modification. • An explanation as to why no new faculty are needed for the proposed modification. • A brief description of the licensure process and a discussion about how the proposed program will prepare graduates for licensure. • An explanation of how existing funds are being reallocated as well as identification of federal funds to support the program. • A discussion about possible articulation with the technical colleges. • A discussion of potential collaboration with USC Aiken.
Revised Program Proposal Received	12/1/14	The revised proposal satisfactorily addressed all of the requested revisions except for the discussion about possible articulation and potential collaboration. The University and USC Aiken submitted a letter to Commission staff addressing collaboration.
CAAL Consideration	1/8/2015	Commissioners asked about the decrease in enrollment from 2011 and 2013. Dr. Kenneth Lewis, Dean of the College of Science, Mathematics, Engineering, and Technology, explained that the decrease was a result of several factors, including leadership changes at the institution and at Clemson that affected articulation between the two institutions. Dr. Lewis also reiterated that the modification is needed so that graduates are eligible for licensure as Professional Engineers.

Recommendation

The Committee on Academic Affairs and Licensing recommends that the Commission approve the program modification to transition the B.S. in Industrial Engineering Technology into a B.S. in Industrial Engineering, to be implemented in Fall 2015.

Committee Member Questions and CHE/Institutional Responses:
S.C. State University, B.S., Industrial Engineering Technology, Develop into B.S. in Industrial Engineering

QUESTION: Pg 8, second chart. How should we interpret the drop in enrollment from 68 to 52 between 2011 and 2013?

INSTITUTIONAL RESPONSE: The drop in enrollment is explained by these facts:

After nearly two years of negotiations with then Dean Esin Gulari, in 2009 an Articulation Agreement for a joint bachelor's degree program in Civil Engineering was signed by the Presidents, Provosts, Deans, and relevant chairs of SC State and Clemson Universities. The Agreement was based on the same model that SC State has with the University of Wisconsin for the nuclear engineering program. SC State student interest rose in 2008 in anticipation of potentially having the option to obtain a BS degree in Civil Engineering. Student interest continued to increase in light of the ABET-EAC accreditation of the nuclear engineering program, as students now saw the possibility of having a fully accredited BSCE degree.

However in 2011 through 2012, nearly all of the signatories of the Agreement has changed: at SC State, I left in June as Dean, the VPAA was replaced in December, and the SC State President stepped down the following March. At Clemson, Dean Esin Gulari, a champion for the joint program, stepped down as Dean due to illness, and shortly thereafter the Clemson President, Dr. Barker stepped down, along with Provost Helms, who also supported the initiative. With these changes, and relative inaction on continuing the joint degree effort, student optimism diminished, which is what the chart in question shows.

The Agreement was never implemented or presented to CHE for final approval. However one of the students that we had identified to pilot the program is now a third year doctoral student in the civil engineering program at Clemson. She also passed the EIT exam for eventual professional licensure.

Proposing Institution

South Carolina State University

Title of Proposed Program

Bachelor of Science in Industrial Engineering

Submission Date

November 14, 2014

Mr. Thomas J. Elzey, President

South Carolina State University

300 College Avenue

Orangeburg, South Carolina 29117

Contacts:

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Program Modification Proposal Classification

Program Title:	Bachelor of Science in Industrial Engineering
Concentrations, Options, and Tracks:	None
Academic Unit Involved:	Department of Industrial and Electrical Engineering Technology, College of Science, Mathematics, Engineering and Technology
Designation, Type, and Level of Degree:	Bachelor's, Industrial Engineering, Four-year undergraduate
Proposed Date of Implementation:	Fall Semester, 2015
CIP Code:	150612
Site:	South Carolina State University, Orangeburg, SC
Program Designation:	Program Modification
Program Qualifies for Supplemental Palmetto Fellows and Life Scholarship Awards:	Yes
Delivery Mode:	Traditional
Area of Certification	N/A

Institutional Approval

Department of Industrial and Electrical Engineering Technology:	February 19, 2014
Dean:	February 20, 2014
Educational Policies Council:	February 27, 2014
Faculty Senate:	March 12, 2014
Board of Trustees:	April 3, 2014
President:	April 3, 2014

Purpose

South Carolina State University (SCSU) requests approval of a Bachelor of Science in Industrial Engineering degree (BSIE). The objective of this program is to modify the existing ABET-accredited Industrial Engineering Technology (IET) program at South Carolina State University (SCSU) to Industrial Engineering (IE) and to offer a BSIE to students at SCSU. In this modification, a total of 38 semester hours are removed from the current IET curriculum and a total of 39 semester hours of new courses are added. The courses that are added to the proposed IE curriculum are listed here. 1) M 237 Calculus III, 2) M 403 Differential Equations, 3) C 152 General Chemistry II, 4) C 153 General Chemistry II Lab, 5) EE 230 Circuit Analysis, 6) EE 233 Circuits Laboratory, 7) ENGR 213 Strength of Materials, 8) ENGR 313 Dynamics, 9) S 250 Public Speaking, 10) MGT 316 Database Management Systems, 11) IE 201 System Design I, 12) IE 368 Professional Practice in Industrial Engineering, 13) IE 440 Decision Support Systems, 14) IE 454 Industrial Operations Research II, and 15) IE 457 Facility Location. All these courses already exist in the university catalog except IE 201, IE 368, IE 440 and IE 457 which are developed for the IE program.

According to the Institute of Industrial Engineers's official definition, IE is concerned with the design, improvement, and installation of integrated systems of people, materials, information, equipment and energy. It draws upon specialized knowledge and skill in the mathematical, physical, and social sciences together with the principles and methods of engineering analysis and design, to specify, predict, and evaluate the results to be obtained from such systems. Industrial Engineers apply engineering design to creating and improving systems that deliver products or services. For instance, an Industrial Engineer may be involved in designing a new production plant for a car manufacturer (a product), or in designing an effective emergency room for a hospital (a service). In designing these systems, an Industrial Engineer integrates equipment, materials, energy, information, and people together to meet business objectives, while insuring product/service quality and reliability, the safety and satisfaction of customers and employees, and the effective and productive use of resources.

The purposes of this proposed program are:

1. To provide students with opportunities to become licensed as Professional Engineers (PE) in the state of South Carolina. After June, 2020, a provision in South Carolina state law regarding professional licensure of engineers will become effective that will prohibit Engineering Technology graduates from becoming licensed as Professional Engineers in this state.

2. To provide students with enhanced employment opportunities after graduation, both inside and outside of South Carolina. Many employers will not hire Engineering Technology graduates; this is especially true in the state of South Carolina. For many existing and developing job opportunities in South Carolina, graduation from an Engineering Accreditation Commission of ABET (EAC of ABET) accredited institution (as opposed to an Engineering Technology Accreditation Commission (TAC of ABET) accredited institution) is a requirement for employment. Many institutions of higher learning also require this designation for those graduates who desire to pursue graduate degrees in engineering. Jobs with the US government may permit Engineering Technology graduates to be hired in engineering classifications *provided* they have passed the Fundamentals of Engineering (FE) examination. However, by extension, Engineering Technology graduates will most probably not be allowed to sit for this exam in the state of South Carolina after June 2020, since it is the preliminary and necessary step towards PE licensure.

3. To address the persistent demand for IE graduates.

4. To provide continuing education opportunities for locally employed engineering graduates who desire to do so, (e.g. admission to M.B.A. programs, distance education degree programs, and other similar programs that insist on EAC of ABET accredited undergraduate degrees).

5. To provide the technical manpower to the region that will ensure retention of existing industry and promote industry expansion within the local region.

6. To foster improved relationships between industry partners and SCSU through providing them with qualified employees.

The IE program is expected to be put into place in the fall of 2015. At that time all incoming students will be placed in the BSIE program and none will be allowed into the BSIET program as it will be in the process of phasing out. Students who are Juniors and Seniors in the BSIET program will graduate in that program; however, if they choose too, they will be allowed to change to the BSIE program. It will be fully explained to them that if they choose to change to the BSIE program that they may have to extend their time at SCSU. Students who are freshmen or sophomores in the BSIET program at that time will be transferred to the BSIE program. The existing BSIET program will be closed by the end of the 2017/2018 year.

Justification

To survive and prosper in today's global markets, companies must constantly improve the quality of their products and services, the productivity of their organizations, and how quickly they can respond to changing customer needs/wants. This is what Industrial Engineers do. Industrial Engineers have an incredibly diverse range of career options. Career opportunities can be found in traditional manufacturing, such as automotive and electronics manufacturing, and the aviation and ship-building industries; process industries such as chemical, steel, pharmaceuticals, and paper manufacturing; construction industries ; and service-oriented industries such as financial institutions, hospitals and health care, transportation and logistics, government, and business systems consulting. As firms facing global competition seek new ways to improve productivity, they will increasingly turn to industrial engineers to achieve these improvements. SCSU implemented its IET program in the fall of 1985 to take steps to remedy the lack of modern industrial engineers in the state. The IET program has been accredited by ABET/TAC since 1992 and SCSU is the only institution in the state that offers an accredited Bachelor of Science in Industrial Engineering Technology (BSIET) degree program. Demands placed on IE professions in industry have increased dramatically as manufacturing and the associated supply process have become increasingly complex.

There is a shortage of engineers nationally and in South Carolina. South Carolina State University, with its deep roots in the African-American community, is certain to attract and nurture to graduation young people who would otherwise not have considered a career in engineering. It is highly probable that the university will attract federal and foundation support not available to other universities in the state of South Carolina. The national Bureau of Labor Statistics projects 10,100 new jobs for Industrial Engineers between 2012-2022 and a job growth rate of about 5% nationally for all engineers. It also projects that the number of Industrial Engineers is expected to grow by 6 percent between 2010-2020. This is higher than the average for all engineering disciplines. The growth rate and demand for Industrial Engineers in South Carolina is higher because of the influx of new industries such as Boeing, Amazon, and BMW. New Industries are demanding a diverse work force. Experience has shown that industry prefers engineering graduates. In fact, some industries will not hire Engineering Technology graduates at all especially in South Carolina. Nonetheless, demand for IET graduates from SCSU remains high even during the current economic downturn, and over the past three years over 80% of IET graduates had either accepted a job offer or been admitted to a graduate program at the time of graduation. Several companies, who hired IET graduates of

SCSU, have been demanding qualified IE graduates based upon the quality of performance of our graduates. For example, Boeing Company in North Charleston, which has already recruited four IET graduates (two with M.S. degrees) and presented a seminar Spring Semester 2012-13 and Fall Semester 2013-2014 at SCSU, expressed their interest in recruiting IE graduates from SCSU rather than IET graduates. In addition, employed IET graduates consistently asked to change the IET program to an IE program.

The existing IET faculty is comprised of two Ph.Ds. in the IE discipline and one MS degree holder in IE with extensive industrial experience. The area coordinator was designated as a Governor's Distinguished Professor several years ago. Over the last two years the faculty has published twelve (12) articles in conference proceedings and professional journals. In addition the faculty currently has four (4) active federal grants. This faculty has demonstrated that it already produces IET graduates who are equal to IE graduates. Our recent IET graduates who have attended graduate programs have earned M.S. degrees from various prominent institutions such as Virginia Polytechnic Institutes and State University, Clemson University, and Florida International University. This is a clear demonstration of the fact that our IET graduates can compete successfully with graduates of IE programs anywhere. The proposed program will be able to satisfy the need for industrial engineers demanded by the local businesses and industries.

After June, 2020, a provision in South Carolina state law regarding professional licensure of engineers will become effective that will prohibit Engineering Technology graduates from becoming licensed as Professional Engineers in this state. This implies that any Engineering Technology major who graduated with a B.S. degree after 2012 cannot ever become licensed as a PE in this state with just this degree. The educational requirements for being allowed to qualify to take the professional engineering licensing exam in the state of South Carolina will exclude Engineering Technology graduates as of 2020. This change in policy will greatly disenfranchise IET graduates who are often equally qualified and deserving of being able to earn a professional engineering license as their IE graduate contemporaries. The IET program at SCSU has a history of producing high quality engineering professionals who are a credit to their organizations and to the engineering profession. It is imperative that the modification of the existing IET program at SCSU to an IE program be allowed so that future high quality engineering professionals who are graduates will have a fair opportunity to attain professional advancement and professional licensure if they so desire.

The mission of the College of Science, Mathematics, Engineering and Technology (CSMET) is to "produce scientists, mathematicians, engineers and engineering technologists who are ..." and the mission of SCSU encompasses the following benefits for successful students: "... prepares highly skilled, competent, economically and socially aware graduates to meet life's challenges and demands that enable them to work and live productively in a dynamic, global society." The proposed program is aligned to the missions of the University and CSMET in its goals to produce engineers and meet the needs of local business and industry.

The proposed program does not duplicate any of the existing programs currently offered by the university. The curriculum for the proposed IE program shares a common foundation with mathematics, chemistry, physics, and common engineering subjects.

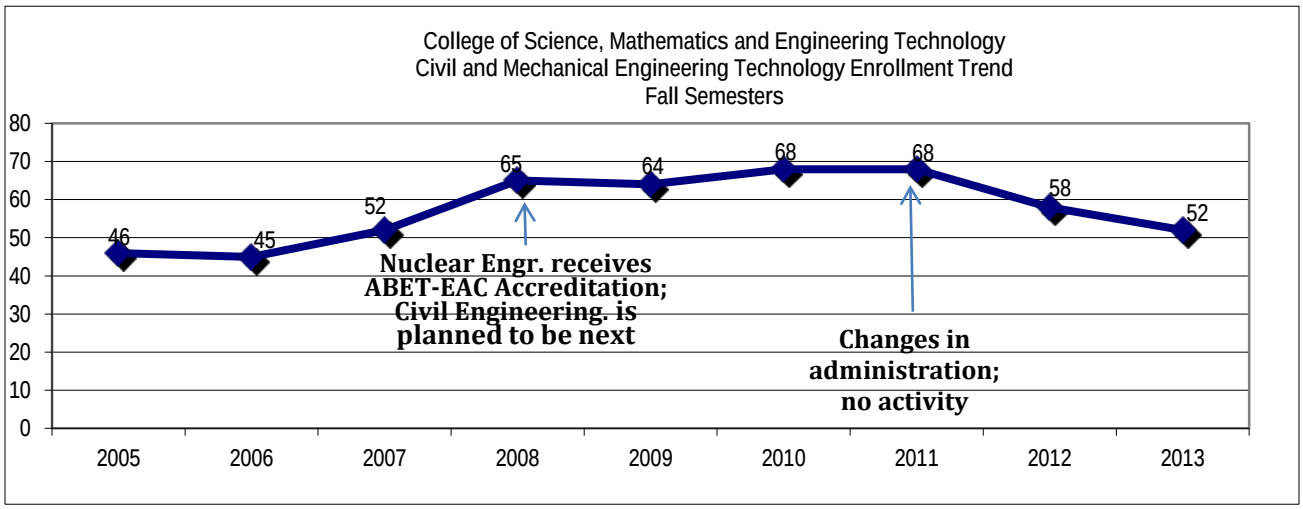
Enrollment

a)

The proposed modification is expected to create an increase in enrollment. South Carolina State University's internal data strongly shows that the university will experience increased enrollment in engineering disciplines as shown in the existing Nuclear Engineering program at SCSU. The table below shows how the Nuclear Engineering Program at SCSU increased its enrollment between 2008 and 2012 even as the overall university's enrollment decreased during that time.

Year	SC State Fall Enrollment	Nuclear Enrollment
2008	4888	30
2009	4538	36
2010	4362	49
2011	4326	53
2012	3807	55
2013	3461	55

The diagram below shows the increase in enrollment for the Civil Engineering Technology Program after an announcement was made that there was a plan to offer Civil Engineering at SCSU.



Both the Nuclear and Civil Engineering Programs enrollment examples indicate a clear student demand and interest in engineering at this university. The implementation of the Industrial Engineering program at SCSU should create the same trend in enrollment increases.

The alignment of academic training with current and predicted market demands in the areas related to this discipline (such as: logistics management, supply chain management, manufacturing processes, product/process efficiency, product layout, facilities layout, etc.) will attract many high performing students that are interested in pursuing careers in science and mathematics. This increase in enrollment should be visible in both the number of in-state

students who are present in this program as well the number of out-of-state students. This is due to the regional and national nature of market demands for an increased number of trained industrial engineers to fill modern and predicted workforce needs.

b)

	Estimated New Enrollment					
Year	**Fall**		**Spring**		**Summer**	
	Headcount	**Credit Hours**	**Headcount**	**Credit Hours**	**Headcount**	**Credit Hours**
2015-16	**6**	**96**	**10**	**160**	**0**	**0**
2016-17	**16**	**256**	**20**	**320**	**0**	**0**
2017-18	**30**	**480**	**32**	**512**	**0**	**0**
2018-19	**38**	**608**	**40**	**640**	**0**	**0**
2019-20	**40**	**640**	**42**	**672**	**0**	**0**

Curriculum

a) Below is the IE curriculum. The courses removed from the existing IET curriculum include M 152 Pre-calculus, PE 150 Physical Education, CS 150 Computer Technology, M 250 Linear Algebra for Science and Engineering, MET 221 Machine Tool Lab, ET 250 Technical Communication, IET 350 Industrial Safety Engineering, ET 421 Thermodynamics, IET 450 Project Planning and Control, MET 427 NC Machinery, EAET 410 Engineering Ethics, and two 3 semester hour electives. The courses added include S 250 Public Speaking, M237 Calculus III, C 152 General Chemistry II, C 153 General Chemistry II Lab, IE 201 System Design I, ENGR 213 Strength of Materials, EE 230 Circuit Analysis, IE 368 Professional Practice in Industrial Engineering, EE 233 Circuits Laboratory, M 403 Differential Equations, IE 440 Decision Support Systems, IE 454 Industrial Operations Research II, IE 457 Facility Location, MGT 316 Database Management Systems, and ENGR 313 Dynamics. Four new courses: IE 201, IE 368, IE 440 and IE 457 (which are represented in the curriculum) have been developed specifically for the program and are described in section b. The curriculum is designed to meet the existing EAC of ABET criteria for the Industrial Engineering program.

South Carolina State University Industrial Engineering Program (Total Credits: 129)				
Freshman Year - First Semester			**Freshman Year -Second Semester**	
Course	Credit		Course	Credit
E 150 English Composition & Comm.	3		E 151 English Composition & Comm.	3
M 153 Calculus I	3		M 163 Calculus II	3
ENGR 150 Mech. Drawing & Basic CAD	3		S 250 Public Speaking	3
ENGR 170 Intro. to Eng. Technology	3		C 150 General Chemistry I	3
PSY 250/SOC 250	3		C 151 General Chemistry I Lab	1
UNIV 101 Intro. to Univ. Comm.	2		H 250/H 251 World History	3
Total	**17**		**Total**	**16**
Sophomore Year - First Semester			**Sophomore Year -Second Semester**	
Course	Credit		Course	Credit
M 237 Calculus III	3		C 152 General Chemistry II	3
P 254 General Physics I w/Calculus	3		C 153 General Chemistry II Lab	1
P 251 General Physics I Lab	1		P 255 General Physics II w/Calculus	3
ARTS 250/MU 250	3		P 253 General Physics II Lab	1
E 250/E 251 World Literature	3		IE 201 System Design I	3
ETS 250 African American History	3		IE 252 Industrial Statistics I	3
ENGR 212 Statics	3		ENGR 213 Strength of Materials	3
Total	**19**		**Total**	**17**
Junior Year - First Semester			**Junior Year - Second Semester**	
Course	**Credit**		**Course**	**Credit**
EE 230 Circuit Analysis	3		IE 355 Simulation Modeling	3
IE 368 Professional Practice in Industrial Engineering	1		IE 353 Intro. To Mfg. Systems Eng.	3
ENGR 255 Engineering Economic Analysis	3		IE 357 Industrial Operations Research I	3
ENGR 310 Engineering Computing	3		IE 356 Plant Layout and Material Handling	3
IE 352 Industrial Statistics II	3		EE 233 Circuits Laboratory	1
IE 354 Motion and Time Study	3		M 403 Differential Equations	3
Total	**16**		**Total**	**16**
Senior Year - First Semester			**Senior Year - Second Semester**	
Course	**Credit**		**Course**	**Credit**
IE 440 Decision Support Systems	3		IE 460 Technical Project	3
IE 452 Statistical Quality Control	3		MGT 316 Database Management Systems	3
IE 458 Human Factors Engineering	3		ENGR 313 Dynamics	3
IE 454 Industrial Operations Research II	3		IE 456 Production and Inventory Control	3
IE 457 Facility Location	3			
IE 459 Technical Project Proposal	1			
Total	**16**		**Total**	**12**

b) List of new courses to be added to the existing BSIET curriculum for modification into a BSIE program curriculum:

The courses listed in this section will be added to the existing courses within the current BSIET program at SCSU in order to modify the current program curriculum into the BSIE program curriculum at SCSU. These courses have been created and approved by the university.

1. IE 368 Professional Practice in Industrial Engineering {1 credit}

   Description: This course is conducted as a seminar to orient students to issues of professional practice as an industrial engineer, through a discussion of design cases, industrial problems, and professional situations, led by South Carolina State University faculty and staff, and by practicing professionals.

2. IE 201 System Design I {3 credits}

   Description: This course is an introduction to the design of industrial engineering systems. Emphasis is placed on design methodologies in the context of a design process including the user or stakeholder needs identification, the design specification development, the design concept generation, evaluation and selection, design development, the prototype development and refinement, and the product delivery to the customers. A series of projects are used to apply the knowledge to real life cases.

3. IE 457 Facilities Location {3 credits}

   Description: This course is designed to teach students techniques used in finding a location for a new manufacturing facility. Topics discussed are transportation, work force, tax base, educational facilities, real estate availability, recreation and others. Upon completion of the course the student should be able to use the above techniques to select a suitable location for a new facility.

4. IE 440 Decision Support Systems {3 credits}

   Description: This course is an application of Decision Support Systems arising in Industrial Engineering (IE). Emphasis is placed on the study of the design of design of Decision Support Systems for production and service systems based on operations research models. It includes methods of decision-making and problem solving, use of spreadsheet with VBA applications, databases, and integrated VBA development environments to implement Decision Support Systems.

Faculty

The existing faculty of the current IET program at SCSU will be used to implement the program modification for the IE program. There will be no required additional costs in terms of faculty in order to create the new BSIE program at SCSU.

The existing IET faculty is comprised of two Ph.Ds. in the IE discipline and one MS degree holder in IE with extensive industrial experience. The area coordinator was designated as a

Governor's Distinguished Professor several years ago. Over the last two years the faculty has published twelve (12) articles in conference proceedings and professional journals. In addition the faculty currently has four (4) active federal grants. This faculty has demonstrated that it already produces IET graduates who are equal to IE graduates. Our recent IET graduates who have attended graduate programs have earned M.S. degrees from various prominent institutions such as Virginia Polytechnic Institute and State University, Clemson University, and Florida International University. This is a clear demonstration of the fact that our IET graduates can compete successfully with graduates of IE programs anywhere. The proposed program will be able to satisfy the need for industrial engineers demanded by the local businesses and industries.

Physical Plant

a) The existing plant infrastructure of the current IET program at SCSU will be used to implement the proposed program modification. There will be no required additional costs in terms of buildings or other plant infrastructure in order to complete this modification. The new Engineering and Computer Science Complex at SCSU (constructed in 2013), as well as the other existing buildings at this University, contain all of the necessary classroom and lab space for housing the proposed modification.

b) There will not be any additional physical plant requirements resulting from this proposed modification.

Equipment

There are not any major equipment items that will need to be purchased in order to perform the proposed modification. All of the equipment being used by the current program are appropriate and necessary to be applied to the modified program.

Library Resources

a) The library has the ability to support the BSIET program. The close proximity between the existing BSIET program and the modified program with the proposed changes, will allow for the library to continue to support the necessary library related activities. There should be no diminishing effects to the overall ability of the library to function as a vital support tool for academics due to the implementation of the proposed modifications.

b) New course proposals (requiring new textbooks) at SCSU are approved by the Dean of the Library only after the needed references or materials are acquired. The Dean of the Library has approved each of the four new courses that have been created for the new BSIE program. For this program, the acquisition cost for the needed references for all new courses was covered by the grant or SCSU Foundation.

IE 457 – Facilities Location

The acquisition cost for the needed references was covered by the grant funded by the US Department of Agriculture

IE 201 – System Design I

The order for the needed references was paid for through the SCSU Foundation.

IE 368 – Professional Practice in Industrial Engineering

Neither text nor reference is required.

IE 440 – Decision Support Systems

The acquisition cost for the needed references was covered by the grant funded by the US Department of Agriculture.

The library's existing books, journals, and electronic databases should be able to fulfill the requirements for this program. Therefore the estimated costs are nonexistent.

c) PASCAL is one of the tools that are currently available for use for the IET program. The availability and use of PASCAL will continue with the implementations of the proposed modifications.

Accreditation, Approval, Licensure, or Certification

The current program has been and is currently accredited by the Technology Accreditation Commission (TAC) of ABET. After the modification is implemented, the accrediting body will switch from TAC of ABET to the Engineering Accreditation Commission (EAC) of ABET. ABET accreditation will be pursued. The BSIE program is expected to be EAC of ABET accredited within four years of CHE approval. In South Carolina graduates of an ABET EAC accredited program may apply for licensure from the State Board of Professional Engineers and Land Surveyors. The graduates do this by first taking the Fundamentals of Engineering exam (FE) either during their last semester before graduating or very shortly after. Then they work in the field for a minimum of four years and apply to take the Professional Engineering (PE) exam. After successful completion of these requirements they may become licensed as Professional Engineers. The engineering department at SCSU is planning on creating a series of courses which will aid the students in passing the FE exam.

Estimated Costs and Source of Financing

The existing faculty, staff, and infrastructure of the current BSIET program at SCSU will be used to implement the new BSIE program. There will be no required additional costs in terms of faculty, buildings, or other resources in order to create the new BSIE program at SCSU.

ESTIMATED COSTS BY YEAR						
CATEGORY	**1st**	**2nd**	**3rd**	**4th**	**5th**	**TOTALS**
Program Administration[1]	18,264	18,629	19,002	19,382	19,770	95,047
Faculty Salaries[2]	164,761	168,056	171,417	174,845	178,343	857,422
Graduate Assistants	0	0	0	0	0	0
Clerical/Support Personnel	6,000	6,000	6,000	6,000	6,000	30,000
Supplies and Materials	2,000	2,000	2,000	2,000	2,000	10,000
Library Resources	0	0	0	0	0	0
Equipment	0	0	0	0	0	0
Facilities	0	0	0	0	0	0
Other (Identify)	0	0	0	0	0	0
TOTALS	191,025	194,686	198,419	202,227	206,112	992,469

SOURCES OF FINANCING BY YEAR						
Tuition Funding[3]	58,320	131,220	225,990	284,310	298,890	998,730
Program-Specific Fees	0	0	0	0	0	0
State Funding*	0	0	0	0	0	0
Reallocation of Existing Funds**	191,025	194,686	198,419	202,227	206,112	992,469
Federal Funding[4]	43,448	0	0		0	43,448
Other Funding (Adjunct faculty salary, etc.)	0	0	0	0	0	0
TOTALS	292,793	325,906	424,409	486,537	505,002	2,034,647

[1]This figure includes 25% release time for the Academic Program Coordinator (APC) of the Industrial Engineering Program. A salary increase of 2% is assumed in subsequent years.
[2]These are salaries of the faculty of the existing Industrial Engineering Technology program and are paid from E&G budget. This includes 75% of the salary of the APC. The faculty salary raise is assumed to be 2% in each subsequent year.
[3]The tuition is calculated at the rate of $3,645 per student per semester.
[4]This figure includes the release time money of one of the IET faculty (Co-PI) and students' stipend from a research project. The Industrial Engineering Technology faculty members have several pending grants amounting about $1M that are not included here since results will not be made known until Jan

South Carolina
Commission on Higher Education

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Ms. Terrye C. Seckinger
Dr. Jennifer B. Settlemyer
Mr. Hood Temple

Dr. Richard C. Sutton
Executive Director

CHE
2/5/2015
Agenda Item 8.02.C

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne and Members, Committee on Academic Affairs and Licensing

Consideration of the Process to Determine Academic Program and Course Eligibility for Scholarship Enhancement

Background

The LIFE/Palmetto Fellows Scholarship Enhancement Task Force proposes updates to the Commission process for determining academic program and course eligibility for additional LIFE and Palmetto Fellows scholarship awards ("scholarship enhancements") to eligible students.

The proposal includes four components:

1. A process to review academic program and course eligibility
2. Recommended guidelines for institutions to apply for academic program and course eligibility
3. A definition of eligible academic programs and courses
4. Implementation of a committee to review course and program eligibility requests

Analysis

In June 2007, the South Carolina General Assembly passed Act 115, enabling students awarded LIFE and Palmetto Fellows scholarships to receive a scholarship enhancement if they met the scholarship enhancement criteria, including majoring in Commission-defined science and mathematics majors. (SC Code of Laws, as amended, §59-104-25 and §59-149-15). The legislation that was enacted provided that the enhancement awards be applied beginning with the academic year beginning in fall 2007.

As directed, the Commission on Higher Education (CHE) worked to define what constituted a science or mathematics major per the conditions of the legislation so that the scholarship enhancements could be awarded as legislated beginning in the fall of 2007.

At the June 19th, 2014 ACAP meeting, Dr. MaryAnn Janosik proposed the organization of a Scholarship Enhancement Eligibility Task Force, comprised of volunteers from ACAP, or their nominees. The charge Dr. Janosik gave at the ACAP meeting and reiterated at the first task force meeting was to "review current practices regarding the determination of program/course eligibility under LIFE/Palmetto Scholarships. This task force is charged with developing a process for reviewing eligibility and for establishing a committee to review all course and program eligibility requests." (Memorandum, June 20, 2014)

The task force convened three times during the summer and reviewed pertinent South Carolina state laws and regulations; current Commission practice for determining eligibility; eligible academic programs and courses; and publications from international, federal, regional and state sources that address disciplines in life and physical sciences, mathematics, science education, math education, and allied health, which are the fields eligible for enhancement. Task force membership includes leaders from an independent institution, the Technical College System, public four-year and research institutions, and Commission staff in Academic Affairs and Student Services.

Task Force deliberations have resulted in the following outcomes:

1. *Instructions for Institutional Application for Degree Programs and Individual Courses* (See Attachment 1.)
2. A definition of eligible programs for student majors in science and mathematics
3. Protocols for establishing an advisory committee to review course and program eligibility requests to be known as the Scholarship Enhancement Eligibility Review Committee (SEER) (See Attachment 2.)

The *Instructions* include the definition for eligible programs and courses; a summary of student eligibility; protocols for application submission; and a timetable for submission, review and notification to institutions of results. The *Instructions* also include summaries and references to pertinent legislation and regulations: specifically, the South Carolina Code of Laws, as amended §59-104-25 and §59-149-15, and the program regulations for LIFE and Palmetto Fellows as included in the South Carolina Code of Regulations Chapter 62, R.62-300-375 and R.62-1200.1-75, respectfully.

Upon drafting, critiquing, and refining several editions of the *Instructions for Institutional Application for Degree Programs and Individual Courses*, and the summary of the provisions for a review committee, SEER, the task force consensus was that the eligibility process and instructions as presented are significantly improved, provide clarity and soundness, and remain consistent with state laws and regulations. Members of the task force appreciate that the new process makes provision for committee consideration of future questions that may arise about criteria or the evolving profile of science, mathematics and allied health disciplines. During this period before the process is initiated, if approved by CHE as recommended herein, the Office of Academic Affairs will continue to work with institutions by reviewing eligibility requests with interim protocols that also will enable a successful phase-in implementation of the proposed full plan.

Recommendation

The Committee on Academic Affairs and Licensing commends favorably to the Commission the implementation of the process for the review and approval of programs for scholarship enhancement eligibility, including the *Instructions for Institutional Application for Degree Programs and Individual Courses*, and the commencement of the review committee (SEER) to evaluate academic program and course eligibility.

South Carolina Commission on Higher Education

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Dr. Richard C. Sutton
Executive Director

LIFE and Palmetto Fellows Scholarship Enhancement Eligibility

Instructions for Institutional Application
For
Degree Programs and Individual Courses

LEGISLATIVE CHARGE

In 2007, the South Carolina General Assembly passed Act 115, enabling students awarded LIFE and Palmetto Fellows scholarships to receive an additional scholarship award stipend ("Scholarship Enhancement"), if they met the scholarship enhancement criteria, including majoring in Commission-defined science and mathematics degree programs. Post-secondary and workforce retention of distinguished students are the goals of the awards. (SC Code of Regulations, R.62-300-B and 62-1200-1)

The South Carolina Commission on Higher Education (CHE) administers the LIFE and Palmetto Fellows Scholarship Enhancements in accordance with South Carolina Code of Laws, as amended §59-104-25 and §59-149-15, and pursuant to the program regulation for the Palmetto Fellows and LIFE Scholarship Programs under South Carolina Code of Regulations Chapter 62. The legislation directs the Commission to define science and mathematics majors:

> The Commission on Higher Education by regulation shall define what constitutes a science or mathematics major but at a minimum shall include majors in science or mathematics disciplines, computer science or informational technology, engineering, science education, math education, and health care and related disciplines including medicine and dentistry. (SC Code of Laws, as amended, §59-104-25 and §59-149-15)

To refine its determination of the eligibility of academic programs and courses, the Commission issues the following procedures:

- Standardization of the process to review academic programs and courses
- Instructions for application for eligibility
- A definition of eligible science and mathematics majors

The *Instructions for Institutional Application* are intended to summarize, clarify and remain consistent with the applicable Code of Laws and Code of Regulations. Applicable laws and regulations are published on the South Carolina Legislature website and on the Commission website.

DEFINITION

Through its research the scholarship enhancement program eligibility task force charged with formulating review guidelines concluded that defining an academic program that "constitutes a science or mathematics major" as mandated by state statute is an iterative process on international,

federal and state levels, and therefore warrants continual review, resulting in the periodic update of the published list of approved academic programs and courses.

For current evaluation, eligible science and mathematics majors include life and physical sciences, engineering, mathematics, information technology and health disciplines as defined by the US Bureau of Labor Statistics Standard Occupational Classification Recommendation. To help determine eligibility, the Commission will consider the following questions:

1. **Growth**. How does the program continue to attract and produce STEM professionals in growing economic areas?
2. **Competitiveness.** How will the degree program help to improve students' competitiveness for international job opportunities within the state?
3. **Graduate Study.** How does the proposed program prepare students for graduate study?

STUDENT ELIGIBILITY

SC Code of Regulations R.62-318-A and B specify requirements for student eligibility for scholarship enhancement to include 1) Palmetto Fellows and LIFE eligibility; 2) satisfaction of the fourteen (14) credit hour prerequisite; 3) satisfactory collegiate academic progress; 4) full-time enrollment in a declared major in an eligible degree program; 5) and institutional eligibility. Moreover, the Commission affirms student transferability: for a course counting toward eligibility for a student at one institution, the student maintains the eligibility credits earned when he or she transfers to another in-state institution.

"Enrollment in a minor does not meet the requirements of an eligible degree program for the Palmetto Fellows or LIFE Scholarship Enhancement. Students must be enrolled in a declared major in an eligible degree program that is approved and assigned a CIP Code by the Commission. Eligible degree programs are those listed as such on the Commission's Web site." (Code of Regulations R.62-310-M and 62-1200.5-P)

The Commission has published listings of approved scholarship enhancement degree programs as well as courses for satisfying the 14-credit hour requirement. However, mathematics, science and allied health programs approved at one institution do not confer *de facto* approval to other institutions. Each institution must submit applications for all of the academic programs or courses it requests the Commission to consider for scholarship enhancement eligibility. Mathematics and science programs or courses that appear and remain on the Commission-approved scholarship enhancement list do not require new applications. Institutions are required to complete the following instructions to submit an application for consideration for degree program or course approval.

INSTRUCTIONS FOR INSTITUTIONAL APPLICATION

1. Applications will be considered for review only for academic degree programs eligible for consideration. (See **Academic Program Eligibility**.)
2. Applications will be considered for review only for individual courses eligible for consideration. (See **Course Eligibility**.)
3. Only an institution's Chief Academic Officer (CAO) or the CAO designee may submit applications. (See **Authorship**.)
4. Applications may be submitted year round but will be considered only during one of two review cycles. (See **Timetable**.)
5. Applications will be considered for review only if they comply with the requirements itemized. (See **Requirements for Academic Program Applications**.)

Academic Program Eligibility

Existing Programs. Applications will be considered only if the existing academic program satisfies all of the following requirements:

1. Listing in the Commission's Inventory of Academic Programs
2. Coding by the Catalog of Instructional Programs (CIP) under one of the codes approved by the CHE
3. Listing in the institution's official catalog with a defined course of study, including course descriptions
4. Identification in the application of the courses in the curriculum that meet the 14-credit hour requirement

New Programs. Academic programs the Commission has not approved previously require the submission of a New Program Proposal according to the *Policies and Procedures for New Academic Programs, Program Modifications, Program Notifications, Program Terminations, and New Centers.* The institution's data and rationale for the proposed program's eligibility for scholarship enhancement should be included in the New Program Proposal (see **APPLICATION** instructions below). The Scholarship Enhancement Eligibility Review Committee (SEER) will evaluate the content submitted for scholarship enhancement consideration from the New Program Proposal by the same panel review process it uses to review stand-alone scholarship enhancement applications.

Course Eligibility

Applications for course eligibility will follow the same submission guidelines as academic program submissions. Applications will be considered only if the course has already secured the following items:

1. An approved CIP code, and
2. A course prefix consistent with programs of study included in the list of eligible programs

Authorship

Only an institution's Chief Academic Officer (CAO) or the CAO designee may submit applications to CHE for consideration of academic program or course approval. Applications for degree programs or courses will not be accepted from unauthorized institutional staff, or from students, students' family members, or other third parties.

Timetable

Institutions may submit applications for scholarship enhancement eligibility during one of two review cycles per year, February or September (see Table), concurring with CHE's cycle of new academic program proposals. Applications must be submitted and approved prior to the beginning of the academic year requested for implementation. The February cycle is considered "prior to" the beginning of the new academic year, and the September cycle is considered "the same as the new academic year. Specifically, submissions by the February review cycle (applications due January 15th) will be considered spring term applications during the current academic year. Therefore, in accordance with the Commission's procedure, *Policy for Addition and Removal of Programs to the List of Programs Eligible for Math/Science Scholarship Enhancements* (2010), if the application is approved, student eligibility status for the scholarship enhancement begins with the freshman class enrolling in the program the next new academic year. Submissions during the September cycle (applications due August 15th) will be considered fall semester applications of the same calendar year (the new academic year). Therefore, if approved, scholarship enhancement eligibility begins with the freshman class enrolling in the program beginning the fall term of the following academic

year. (N.B. Eligible students do not *receive* scholarship enhancements until their sophomore year. SC Code of Laws as amended, §59-104-25-A and §59-149-15-A)

Example: If an application is reviewed by:

- February 2015, and it is approved, student eligibility status begins with the freshman class in Fall 2015.
- September 2015, and it is approved, student eligibility status begins with the freshman class in Fall 2016.

This timetable is designed to assure the Commission review panel, SEER, has opportunities for thorough yet timely analysis.

The Commission advises institutions seeking same calendar year eligibility for new programs or program modifications that include the request for scholarship enhancement to submit proposals on the February cycle. In the rare instance that an institution considers submitting a proposal for a new program or a program modification during the May cycle for implementation during the fall semester of the same calendar year (see the timetable in the *Policies and Procedures for New Academic Programs, Program Modifications, Program Notifications, Program Terminations, and New Centers*), including a request for scholarship enhancement, the request cannot be considered by the review panel until the September meeting, after the fall term has begun. (See Timetable and Example; see Table)

Table

COMMISSION EVALUATION PROCESS FOR SCHOLARSHIP ENHANCEMENT			
Scholarship Enhancement Application Due	Scholarship Enhancement Eligibility Committee Meeting	Notification to Institutions	Implementation Cycle (earliest possible date)
January 15	February	April 15	Same calendar year, beginning the Fall term
August 15	September	November 15	Next calendar year, beginning the Fall term

Applications for submission may be approximately two or three pages for individual courses or academic programs, respectively, to include the cover/contact page, standard formatting for margins, font selection and size, and single-spacing for paragraphs.

Applications for courses and applications for academic programs are separate documents with separate instructions. See below for the respective application requirements.

APPLICATION for Individual Courses

Page 1. Cover/contact Page

- Name of Institution and Academic Unit
- Full Name of Course including Prefix and Number
- Course Contact Information: Name, Unit or Office, E-mail, Phone

Page 2. Course Information

- Course Description
- Type of Course, e.g., general education, major requirement, etc.
- List the course's unique features including laboratory or experiential learning components, if applicable
- Current CIP code (Classification of Instructional Programs)

Appendix

- Syllabus

APPLICATION for Academic Programs

Page 1. Cover/contact Page

- Name of Institution and Academic Unit
- Name of Program (include concentrations, options, and tracks) and CIP Code
- Program Contact Information: Name, Unit or Office, E-mail, Phone
- Institutional Approvals and Dates of Approval

Page 2. Academic Program Information

- State the nature and purpose of the proposed program.
- List the program's objectives.
- List the program's unique features including dual-degree partnerships, articulation agreements, or internships.
- Provide a concise explanation for consideration of the degree program's eligibility for scholarship enhancement. This rationale should address *growth*, *competitiveness* and *graduate study* as described in the definition.

Page 3. Curriculum Outline

- Provide a curriculum sheet or outline of the academic program, itemizing each course by title, course prefix and number, and by course requirement: general education, core or concentration coursework, or electives.
- Identify the courses in the curriculum that meet the 14-credit-hour requirement.

Appendix

- At its discretion, the Commission may request additional information as warranted (e.g., employment opportunities or projections).

South Carolina Commission on Higher Education

Brig Gen John L. Finan, USAF (Ret.), Chair
Dr. Bettie Rose Horne, Vice Chair
Ms. Natasha M. Hanna
Ms. Dianne C. Kuhl
Ms. Leah B. Moody
Vice Admiral Charles Munns, USN (ret.)
Mr. Kim F. Phillips
Ms. Terrye C. Seckinger
Dr. Jennifer B. Settlemyer
Mr. Hood Temple

Dr. Richard C. Sutton
Executive Director

Scholarship Enhancement Eligibility Review Committee (SEER)

Purpose

1. To review applications for academic program and course eligibility according to the procedures in the *Instructions for Institutional Application for Degree Programs and Individual Courses*.
2. To review, at a minimum of every four years, the definition of eligible science and mathematics majors; the criteria for determining eligible academic programs and courses as published in the *Instructions*; the list of approved academic programs and courses for continued inclusion; and the protocols in the *Instructions* to improve the application process.
3. To provide the recommendations from application reviews and committee deliberations to the Commission's Office of Academic Affairs.

Composition

SEER includes one representative from a comprehensive public institution, an independent institution, the technical college system, a research institution, and two staff members from the Commission: one each from Academic Affairs and Student Affairs. (Total = 6.) Preferred representation from each institution includes a full-time academician in mathematics, life and physical sciences, computer science, informational technology, engineering or the health disciplines.

Definition

SEER reviews applications according to the definition for science and mathematics majors published in the *Instructions*. To help determine eligibility, the committee considers three criteria: **growth, competitiveness** and preparation for **graduate study**. (See *Instructions.*)

Schedule

SEER reviews applications twice per year according to the timetable in the *Instructions.*

COMMISSION EVALUATION PROCESS FOR SCHOLARSHIP ENHANCEMENT			
Scholarship Enhancement Application Due	Scholarship Enhancement Eligibility Review Committee Meeting	Notification to Institutions	Implementation Cycle (earliest possible date)
January 15	February	April 15	Same calendar year, beginning the Fall term
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CHE
2/5/2015
Agenda Item 8.02.D

February 5, 2015

MEMORANDUM

To: Chairman John Finan, and Members, Commission on Higher Education

From: Dr. Bettie Rose Horne, Chair, and Members, the Committee on Academic Affairs and Licensing

Consideration of Annual Evaluation of Associate Degree Programs
FY 2012-2013

Background

The *South Carolina Master Plan for Higher Education* (1979) requires the annual review of associate degrees in the State's public higher education institutions.[1] In 1996, the passage of Act 359 underscored the importance of program accountability by focusing on performance indicators including time to degree and graduates' first-time passing rates on professional licensure examinations.[2] This edition of the annual evaluation of associate degree programs provides an assessment of academic program performance across all disciplines during the 2012-2013 academic year. Data and assessment of program enrollment, completion and placement are provided through a general analysis of programs of study at the University of South Carolina system and the South Carolina Technical College System. Institutions complement the data provided with information about the initiatives implemented to continue success of strong-performance academic programs, and plans initiated to increase the success of programs needing to show improvement.

The purposes of this study remain relevant as part of the focus of both state and national governments on institutional accountability. The language of Act 359 maintained the purposes of this annual review as they had been articulated in earlier legislation and Commission policy as follows:

1. to ensure that programs demonstrate responsiveness to employment trends and meet minimum standards of enrollment, graduation, and placement
2. to identify programs which need to be strengthened.

[1] *South Carolina Master Plan for Higher Education*. Columbia: South Carolina Commission on Higher Education, 1979. 24, 129.
[2] South Carolina, General Assembly. "S*1195 (Rat #0368, Act #0359 of 1996) General Bill." 1995-96 Bill 1195. May 20, 1996. Accessed December 23, 2014. http://www.scstatehouse.gov/sess111_1995-1996/bills/1195.htm.

Given the preponderance of associate degree programs which are employment driven and thus related to specific occupations or occupational sectors, this report has consistently sought to provide insight into specific programs which are either *exceptionally achieving* their ends or are *underperforming* in relationship to the state's current and future economic development needs.

The procedures for this review require each program's productivity to be evaluated in terms of enrollment, number of graduates, and percent of graduates placed in a related job or continuing their studies full-time. The following criteria apply to this review process:

1. Each program must produce at least six (6) graduates during the evaluation year or an average of at least six graduates over the most recent three-year period.
2. At the most recent fall term, each program must enroll at least sixteen (16) students who generate twelve (12) full-time equivalents.
3. At least fifty percent (50%) of the graduates available for job placement must be placed in a job related to their education or continue their education on a full-time basis.

Programs which fail to meet these criteria must be canceled, suspended, or put on probation unless their continuation is justified to the Commission. Justification for programs may take into consideration factors such as manpower requirements, funding, and employment "stop outs" of students. In addition, three programs—General Technology, Vocational Technical Education, and General Engineering Technology— historically have had different and much more flexible standards of evaluation because of the unique needs they have filled and the low enrollments which they were expected to produce. As such, they have been considered "justified" for continuation regardless of whether or not they met the evaluation requirements.

When a degree program is placed on probation, the institution may continue to offer it but must provide a plan for the program to meet all criteria within three years. Suspension means that the program's inability to meet the minimum criteria is serious enough to discontinue temporarily the enrollment of new students in the program until the institution can study the need and demand for the program. A program may remain on suspension for three years.

Distribution of Associate Degree Programs by System and Sector

For this reporting period, associate degree programs exist in all 16 technical colleges and the four two-year regional branches of the University of South Carolina (USC). In addition, associate degrees are offered by USC Columbia at Fort Jackson and by USC Beaufort at the Marine Corps Air Station. Both of these continue at the request of the military base administration and commanders.

This current assessment of associate degree programs in the state's public institutions relies on academic year 2012-2013 graduation and employment data and Fall 2013 enrollment data. Evaluation encompasses 293 associate degree programs in the technical college system, and nine (9) associate degree programs in the USC System: seven (7) at the two-year campuses, one at USC Beaufort, and one at USC Columbia. New associate degree programs (those implemented within the past three years) are always excluded from this analysis.

I. General Analysis of the Programs of Study in the USC System

As stated, all USC regional campuses designated as "two-year," as well as USC Beaufort at the Marine Corps Air Station and USC Columbia at Fort Jackson, continue to offer Associate of Arts/Associate of Science (AA/AS) degree programs. USC Beaufort, formerly a two-year institution approved to become a four-year institution in June 2002, has been permitted by the Commission on

Higher Education to continue to offer the Associate of Arts/Associate of Science degree program at the military bases in Beaufort. The number of graduates from the program at USC Beaufort has maintained a level trend, averaging precisely four (4) graduates annually over the past five years. (See **Table 1.**) However, according to USC Beaufort officials, the dramatic decline in the on-base associate degree program compared to previous years has been precipitated at least in part by the fact that once USC Beaufort became a four-year institution it charged tuition and fees for the two-year program at the four-year rate. Given the presence of other providers on the military base with significantly lower charges, enrollments have suffered. USC Beaufort has recently adopted a new "military rate" for active military personnel; along with other resources that will be allocated to the program, USC Beaufort is working proactively to revitalize this program.

In February 1998, USC Columbia requested and received approval to revise its mission statement so that its ongoing offering of the Associate of Arts degree program at Fort Jackson would be officially included as part of its institutional mission. Enrollment and graduation data show that this program is very small. (See **Table 1.**)

In the past, Commission staff reasoned that because the associate degree program at Fort Jackson is small and peripheral to the mission of the state's comprehensive *research* university, the degree program would be more appropriately offered by a local two-year institution, either USC Sumter or Midlands Technical College. The University administration has maintained historically that the program is integral to fulfilling the University's community and humanitarian mission, and representatives of Fort Jackson have strongly supported this view, despite the program's small size.

As **Table 1** shows, over the most recent five years the numbers of graduates from the associate degree programs in the University of South Carolina system have varied considerably. The data reported from the USC Columbia Institutional Research Office show that for 2012-2013, four of the six USC campuses offering the AA/AS program have experienced increases in graduates compared to the 2011-2012 academic year (USC Beaufort, Lancaster, Sumter and Union). Two USC campuses experienced a decrease in graduates during the same time (USC Columbia and Salkehatchie). The total number of AA/AS graduates in the USC System increased 3.3% (356 to 368) from 2011-2012 to 2012-2013. Reviewing the most recent five years of data in **Table** 1 verifies this increase is driven by degree completion growth at USC Salkehatchie, Sumter and Union, and degree completion resurgence at USC Lancaster.

However, a closer inspection of the data from two USC campuses reveals mixed productivity results. With an associate degree graduation average of 3.3 annually for the three years most recently available, 2010-11 through 2012-13, and producing a class of only four (4) graduates for the most recent year in review, 2012-2013, productivity at USC Beaufort did not satisfy the first benchmark (graduation). Moreover, 10 total students enrolled in the associate degree program (headcount) translating into eight (8) full-time equivalents (FTE) means USC Beaufort also did not meet the second criterion (enrollment) that required a sixteen-student headcount (16) and 12 FTEs, respectively. As data will show on p.12 and following, USC Beaufort demonstrates a successful job and full-time study placement rate for 2012-2013 graduates, seventy-five percent (75%), suggesting that the more students the campus can recruit and retain in the General Arts & Science program at the Marine Corps Air Station, and by maintaining its placement trend, the more graduates it can steer successfully to related jobs and continued full-time studies.

The General Arts & Science program at USC Columbia is the other associate degree curriculum that partially satisfies the three criteria. This program at Fort Jackson awards degrees to an average of six (6) graduates over the most recent three years available, 2010-11 through 2012-13, satisfying the first criterion (graduation). However, nine (9) total students enrolled in the program (headcount) translating into four (4) full-time equivalents means USC Columbia also did not meet the second criterion (enrollment) that required a sixteen-student headcount (16) and 12 FTEs, respectively. As

data will show on p.12 and following, USC Columbia demonstrates a successful job placement rate for 2012-2013 graduates, seventy-five percent (75%), but no full-time study placement rate (0%) for the same year, suggesting two conclusions. First, by maintaining its workforce placement trend, the more students the campus can recruit and retain in the General Arts & Science program at Fort Jackson, the more graduates it can steer successfully to related jobs. The second deduction is that recent full-time study placement trends (three AA/AS graduate placements in 2010-2011, and one in 2011-2012) require investigation to determine which if any recruitment reinforcement is needed to catalyze the student transfer pipeline from associate degree completion at Fort Jackson toward continuing full-time studies at four-year institutions or elsewhere.

Completion of an associate degree is a critical success factor for both student transfer to a four-year institution and *the rate* at which such transfer students complete the baccalaureate degree.[3] These dynamics, linked with students' eligibility for the Lottery Tuition Assistance Program while working toward their associate degrees, suggests that the two-year USC regional campuses should continue to review and implement the most effective strategies for promoting attainment of the associate degree as a “best practice” to encourage student progression toward completion of a baccalaureate degree.

Two developments in South Carolina have made the impetus even more important to increase the number of associate degree graduates, and their subsequent successful transfers to baccalaureate programs, even more important. As a matter of state policy through legislation, the Education and Economic Development Act of 2005 (EEDA) has placed a premium on “seamless” transfer in higher education with the end of creating a better-prepared and better-credentialed work force in the state. More recently, the Higher Education Study Committee and the Commission on Higher Education have identified as the first goal in the publication, *Leveraging Higher Education for Stronger South Carolina: Action Plan Implementation,* making South Carolina one of the most educated states by 2030 by increasing degree attainment.[4] This goal cannot be achieved without successful efforts, targeted to various elements of the population, to increase the numbers of persons with earned associate and baccalaureate degrees in South Carolina. Coupled with clear empirical evidence of the value added by baccalaureate-degree completers to the state’s economic and civic development, this calls for state policy makers to make efforts to increase associate degree production at all the technical colleges and the USC two-year campuses. These institutions have a significant opportunity, challenge, and responsibility to increase the number of degree completers and prepare them for entry into a four-year program.

[3] "Affordability and Transfer: Critical to Increasing Baccalaureate Degree Completion." The National Center for Public Policy in Higher Education. June 1, 2011. Accessed December 19, 2014. http://www.highereducation.org/reports/pa_at/index.shtml.

[4] "Leveraging Higher Education for a Stronger South Carolina." South Carolina Legislature. March 1, 2009. Accessed December 19, 2014. http://www.scstatehouse.gov/archives/CommissiononHigherEd/ActionPlan_Fullreport_final_withcover.pdf.

Table 1 **Five Year Data of USC System AA/AS Program Graduates**

	2008-09	2009-10	2010-11	2011-12	2012-13
Four-Year Campus					
USC Columbia (Ft. Jackson)	5	8	6	7	4
USC Beaufort (Marine Corps Air Station)	5	5	3	3	4
SUBTOTAL	**10**	**13**	**9**	**10**	**8**
Two-Year Campus					
USC Lancaster	119	112	86	87	100
USC Salkehatchie	85	109	134	127	118
USC Sumter	50	64	88	75	84
USC Union	45	44	44	57	58
SUBTOTAL	**299**	**329**	**352**	**346**	**360**
TOTAL	**309**	**342**	**361**	**356**	**368**

Source: USC annual reports on associate degree data

Applied, Occupationally-Specific Two-Year Degrees in the USC System

The two-year campuses of the USC system present an important challenge to and opportunity for higher education institutions in South Carolina. Three of the four two-year regional campuses are located in communities without a main campus of a technical college: USC Lancaster, USC Salkehatchie, and USC Union. Of these three, only USC Lancaster offers occupationally-specific degree programs, although neither their authorizing legislation nor Act 359 prohibits the others from offering such degrees. The occupational programs at USC Lancaster are in nursing, criminal justice, and business. Graduates for the past two academic years from the occupationally-specific two-year programs at USC Lancaster are listed below in **Table 2**. While the number of graduates has increased in criminal justice and business, the number of graduates in nursing has decreased. In the most recent year, all three of these occupational programs meet the CHE statewide productivity requirements. The USC Lancaster occupational associate degree programs serve a small—but vital—radius of counties in the state.

Table 2 **USC Lancaster Graduates of Two-Year Occupational Associate Degree Programs of Study (Academic Years 2011-2012 and 2012-2013)**

Academic Year	Nursing	Criminal Justice	Business
2011-2012	14	11	19
2012-2013	7	24	29

The Commission on Higher Education has encouraged collaborative efforts among the two-year USC regional campuses and the technical colleges as an avenue to spur economic development. Both systems have responded with a variety of initiatives designed to meet the needs of rural areas. For example, USC offers four Bachelor's degrees in Elementary Education, Nursing, Liberal Studies

and Organizational Leadership through USC Salkehatchie partnerships with USC Columbia and USC Aiken. USC Salkehatchie offers five other bachelor's degrees online through the USC Palmetto College. USC Lancaster offers the Bachelor of Science in Nursing through USC Columbia and two additional bachelors' degree through Palmetto College.

York Technical College has reported significant enrollment growth in occupational courses/programs offered in Lancaster County through the Kershaw-Heath Springs Center. The Technical College of the Lowcountry reports three developments: 1) collaboration with Colleton County to build a Quick Jobs Center to offer technology training; 2) collaboration with the Thunderbolt Career and Technology Center; and 3) partnership with Hampton County to renovate and expand technology training at the Mungin Center. In addition, a training center opened in Union in Fall 2009 in which USC Union offers general education courses, and Spartanburg Community College offers technical education courses.

Another effort of note is the collaboration between the Technical College System and the University of South Carolina's new online initiative, Palmetto College. The two organizations are exploring articulation and transfer agreements in several program areas. The intent of the initiative is to build upon existing agreements and continue the development of seamless educational pathways for students. All such initiatives are commendable.

In summary, graduation rates and student enrollment data for the current review period show that all the two-year programs in the USC system (AA/AS and occupational programs) are currently meeting at least one productivity requirement. Most of the campuses (four of six) are meeting all criteria. However, the data reveal that further consideration of best intervention practices are needed to improve and sustain productivity for all three criteria—enrollment, graduation and job or full-time study placement—at USC Columbia on Fort Jackson and USC Beaufort at the Marine Corps Air Station.

II. General Analysis of Associate Degree Programs in the Technical Colleges

Table 3 provides a summary of the number of programs evaluated over the past 10 years in various performance categories at the technical colleges.

Table 3 Ten Year Summary of Annual Associate Degree Program Evaluation In the Technical Colleges

Year Evaluated	Good Standing	On Probation	Under Suspension	Cancelled	Total
2004	265	22	11	5	303
2005	276	13	8	4	301
2006	277	15	5	4	301
2007	281	15	4	4	304
2008	274	28	2	2	306
2009	275	29	5	0	309
2010	270	30	2	7	309
2011	291	22	4	0	317
2012	285	15[5]	4	0	304
2013	283	7	2	1	293

In the data for the current annual report, seven (7) programs out of 293 (= 2.4%) analyzed at the technical colleges are on probation. By comparison, last year's report regarding academic year 2011-2012 showed a total of 15 programs out of a total of 304 (= 4.9%) were on probation; and the previous year 22 out of 317 programs (= 6.9%) were on probation. Overall, this decline to only seven (7) probationary programs represents a 53% reduction from the 15 programs on probation the year prior (2012), and a 77% reduction from the most recent five-year high threshold of 30 on probation in 2010. This trend is commendable. For this reporting year, the specific programs (by degree and institution) on probation are in **Table 4.**

Table 4 Associate Degree Programs on Probation in Fall 2013 (Total = 7)

College	Cluster	Program
Aiken Technical College	EDU	Early Care and Education
Aiken Technical College	MKT	Marketing
Greenville Technical College	LAW	Criminal Justice Technology
Greenville Technical College	STEM	Biotechnology
Greenville Technical College	STEM	Geomatics Technology
Trident Technical College	STEM	Civil Engineering Technology
Williamsburg Technical College	BUS	Administrative Office Technology

[5] After previously reporting the Diversified Agriculture program at Piedmont Technical College as *Probation-1* for the academic year 2011-2012 annual evaluation, the SC Technical College System discovered upon internal review that the course did not merit probation status since it had not yet completed three graduation cycles, which is a criterion required for programs to be subject to evaluation (SCTCS Procedure 3-1-301.1). Instead, the correct status for Diversified Agriculture for the 2011-2012 academic year evaluation is *NotSub-1* (Not subject to evaluation), reducing the number reported on probation from 16 in last year's report to the correct tally above, 15.

II A. Engineering and Industrial Technology programs

In last year's report, Engineering Technology and Manufacturing programs represented the highest number on probation with four each (4). Business programs were third with two programs on probation (2). This year no single program represents a probationary outlier. As explained on page 6, particularly noteworthy is that only seven programs (7) are on probation: one each in Early Care and Education, Marketing, Criminal Justice Technology, Biotechnology, Geomatics Technology, Civil Engineering Technology, and Administrative Office Technology. Probation status across seven different programs means that focused efforts by the South Carolina Technical College System have eliminated probationary performance in any one program. For *students,* this movement of programs from probationary status to good status is evidence that colleges have focused intently on the assessment of student needs and program curriculum in an effort to improve retention and completion.

Some programs on probation last year, including Administrative Office Technology, Civil Engineering Technology and Biotechnology, have re-appeared on probation this year. Due to the lack of need in their service areas, the colleges hosting two of these three programs, Civil Engineering Technology and Biotechnology, have initiated program phase-outs. Moreover, regarding the Administrative Office Technology program, Williamsburg Technical College is working diligently to evaluate the staffing, class schedules, and program curriculum in hopes that it will regain *Good* status in the next evaluation cycle.

The data showing low enrollments and graduates in Engineering Technology degree programs is long-standing. As a system, the technical colleges of South Carolina have been described as a national model for preparing the state workforce. However, the System needs to continue to work on developing a long term plan to remove any Engineering Technology programs from the "probationary" group, and keep them off. These programs assist the state in attracting and retaining industries which want to locate in South Carolina. Such industries tend to be engines of major growth and innovation, attracting other corporations to enter into the state. BMW and Boeing are two examples of industries that have moved to South Carolina and provide extensive intangible benefits aside from jobs and income generated.

This report has cited the gulf between the often-stated need by the industrial/engineering community for Engineering Technology graduates and the small enrollments and graduates in these programs. Six years ago the Technical College System reported an initiative to address this issue more systematically by focusing on three areas:

- Elimination of excess coursework in some programs;
- Consolidation of multiple "engineering technology" programs at a single institution to concentrate resources and produce a more integrated curricular approach; and
- Vigorous recruitment of talented high school students, including the granting of college course credit through *Project Lead the Way* (*PLTW*), into Engineering Technology programs.

Several institutions have developed initiatives aimed at increasing the numbers of student enrollment and graduation in the Engineering Technology programs. In September 2010, the SC Department of Education signed a formal agreement to work with technical colleges and public universities to promote engineering and mechatronics education after receiving a Rigorous Programs of Study grant from the US Department of Education to establish two pathways designed to positively impact the education of Science, Technology, Engineering, and Mathematics (STEM) professionals in the state. The partners include six technical colleges for *Project Lead the Way* and six technical colleges for mechatronics. Both *PLTW* and mechatronics are programs that begin in high school and allow students to take classes in which they receive dual credit. The University of South

Carolina College of Engineering and Computing serves as the state's *Project Lead the Way* University Affiliate for the grant.

Aiken Technical College has developed a dual-credit Early College for with Pre-Engineering or General Education pathways, available to Aiken county high school students. In Fall 2010, in addition to Teacher Cadets, the institution had 25 high school students enrolled in general education courses. Aiken Technical College and the University of South Carolina Columbia have signed an articulation agreement pertaining to the Pre-Engineering program.

The Technical College System continues to make efforts to increase student enrollment and retention in engineering technology programs. Two years ago, the System initiated a strategic retention plan across the state to create flexible, seamless learning environments while also providing additional academic support for students in engineering technology programs. The plan includes these features:

1. Curriculum revisions that require foundational math courses earlier in the program
2. Enhanced support services such as open labs, supplemental instruction, and mentoring services
3. Flexible scheduling to include smaller class sizes, as well as hybrid, day, and evening courses
4. Work-based learning opportunities through internships and cooperative experiences
5. Project-based learning experiences in core coursework
6. Partnerships with secondary districts through *PLTW*, pre-engineering academies, and agreements

These efforts continue to meet with some success, since three engineering technology programs **(Table 8**, p.11) have moved from *Probation* to *Good* status. All the prevailing economic models for the state's future assume that, together, engineers supported by engineering technicians will play an essential role in building South Carolina's 21st century economy. To meet this goal, the decreasing numbers of students enrolled in and graduating from Engineering Technology programs in the state must be addressed.

II B. Continuing Success of Associate Degree Programs in the Technical Colleges

A primary purpose of the associate degree programs offered at the state's two-year institutions is to prepare students for transfer into baccalaureate programs. In South Carolina, associate degree programs began in the 1970s in response to the needs of persons who, for reasons of finance, geography, and/or historical under-representation in higher education (especially mature students, women, and minorities), found it much more possible to begin a baccalaureate degree program by taking the first two years of coursework at a technical college.

For this reporting year, <u>all</u> associate degree programs in the Technical College System are in the *Good* category regarding the first criterion: that is, producing "at least six (6) graduates during the evaluation year or an average of at least six graduates over the most recent three-year period."[6] (See **Table 5.**)

As **Table 5** demonstrates, the associate degree programs in the Technical College System produce a number of program completers, therefore availing the possibility for transfer into a four-year degree program to many South Carolinians. In fact, the 2012-2013 data show that associate degree programs produced <u>21% more graduates</u> compared to the previous year (2391 to 1970 = +421). The majority of state technical colleges (10 of 16) graduated more students than in the preceding

[6] P.2.

year. Six (6) graduated fewer students. Associate degree programs are of unique benefit to the state and to students because they provide the equivalent of the first two years of a baccalaureate education, but at a much lower cost than the standard four-year institution. As of Fall 2009, all associate-level degrees in the Technical College System have been changed to the three nationally recognized designations: A.S., Associate in Science; A.A., Associate in Arts; and A.A.S., Associate in Applied Science.

Table 5 Graduates of AA/AS/AAS Degrees by Institution, 2008-09 through 2012-13

Technical College	**Year**				
	2009	**2010**	**2011**	**2012**	**2013**
Aiken Tech	45	53	61	74	75
Central Carolina	42	31	28	37	65
Denmark	34	22	10	27	32
Florence-Darlington	36	59	68	76	61
Greenville	207	233	233	235	229
Horry-Georgetown	104	108	182	265	426
Midlands	308	285	312	426	393
Northeastern	28	41	30	28	35
Orangeburg-Calhoun	6	20	9	14	27
Piedmont	58	58	55	52	63
Spartanburg Community College	63	63	106	127	121
Lowcountry	28	54	29	37	26
Tri-County	78	86	120	90	112
Trident	342	313	368	364	611
Williamsburg	17	20	24	44	24
York	60	45	59	74	91
TOTAL	**1456**	**1491**	**1694**	**1970**	**2391**

Four institutions were exceptionally successful, graduating at least 61% more students in the current report cycle, class of 2013, than in the previous year, class of 2012.

Table 6 Exceptional Achievement: Technical Colleges Graduation Rates, 2012-2013

Technical College	**Percentage Increase %**	**Increase Differential = N**
Central Carolina	76%	+28
Horry-Georgetown	61%	+161
Orangeburg-Calhoun	**93%** (highest % improvement)	+13
Trident	68%	**+247** (largest headcount increase)

The SC Technical College System attributes these successes primarily to increased collaboration with senior institutions. Collaborative efforts have led to the development of new articulation agreements and transfer opportunities for students upon completion of their AA/AS degree. Horry-Georgetown and Coastal Carolina, for example, have implemented transfer pathways into Coastal Carolina's baccalaureate nursing and education programs. Additionally, the two institutions have established a broad transfer agreement granting junior-year status at Coastal Carolina to students who have completed an AA/AS degree from Horry-Georgetown.

Furthermore, increased emphasis on retention and graduation has prompted colleges to become more proactive in identifying students that may have met all graduation requirements, but failed to apply for graduation. In some instances, students may not be aware that they are eligible for graduation. The provision of enhanced advising and student support services in recent years is designed to keep students informed of their eligibility to graduate. Such services are likely to have contributed to the increase in AA/AS graduates.

The 2009 Higher Education Action Plan addresses the importance of institutions of higher learning creating pathways to transfer students successfully from two-year degree programs to four-year degree programs. In making South Carolina one of the most educated states in the country by the year 2030, the Action Plan recommends that the State "create incentives and requirements for seamless transitions between and among two-year and four-year institutions, including the implementation of a statewide initiative to monitor transfer."[7] The CHE has developed an online course transfer and articulation tool, *SC TRAC*, which will help transfer students identify course equivalencies and degree credit awards for transfer courses. Work is continuing with the institutions to manage course equivalencies, transfer information into the system, and to install interfaces with the system so that information related to course articulation and transfer is easily added and displayed.

II C. Importance of the Associate Degree Nursing Programs (ADN)

For a number of years this annual report has been grounded in two basic assumptions about the program of study leading to the associate degree in nursing:

1. In South Carolina the associate degree in nursing is accepted by employers as a legitimate degree for a Registered Nurse (RN).
2. Meeting employers' demands for a well-educated nursing workforce to provide safe care in hospitals and other healthcare settings requires the sustained commitment of each institution to enroll and graduate increasingly larger numbers of students. (As in many other states, South Carolina regularly graduates about two-thirds of all its new nurse graduates from associate degree programs.)

During the recession, demand for new nurses declined, in part because of delayed retirements, but at the moment we have no way to quantify the decrease. The actual level of employer demand for nurses is unknown because no database has been made available to show what the actual level of employer demand might be. Therefore, it is not possible to know exactly the number of years required to sustain a commitment to increase the totals of nursing graduates. However, the recently established Office for Healthcare Workforce Research in Nursing in the USC Columbia S.C. Center for Nursing Leadership has set one of its priorities as collecting and disseminating supply and

[7] "Leveraging Higher Education for a Stronger South Carolina." South Carolina Legislature. March 1, 2009. Accessed December 19, 2014.
http://www.scstatehouse.gov/archives/CommissiononHigherEd/ActionPlan_Fullreport_final_withcover.pdf.

demand data. As of 2012-2013 data, the South Carolina Technical College System reports a 96% nursing placement rate for the ADN graduates.

The supply of graduates from nursing programs in the Technical College System has grown convincingly since the issuance of the *Colleagues in Caring* report in 2001. Among the 14 established ADN programs in the Technical College System, 10 graduated more students in this year's reporting class and four graduated fewer than last year. A total of 1413 ADN nurses graduated from the Technical College system in 2012-2013. The significant growth in 10 years from 918 graduates in 2003-2004 to 1413 in 2012-2013 demonstrates the capacity of the technical college system to respond to market demand. (See **Table 7**.)

Table 7 Ten Year Data for Total Numbers of Graduates from Technical Colleges' Associate Degree in Nursing Programs, 2003-2004 through 2012-2013

2003-2004	918
2004-2005	968
2005-2006	940
2006-2007	982
2007-2008	1156
2008-2009	1274
2009-2010	1283
2010-2011	1272
2011-2012	1264
2012-2013	1413

Two programs are noteworthy for recent success. The nursing program at Spartanburg Community College achieved the highest percentage of improvement compared to the previous reporting year, producing 48% more graduates (+15) in 2012-2013 than in 2011-2012 (46 to 31). Moreover, Horry-Georgetown Technical College achieved the highest headcount increase, producing 154 ADN graduates in 2012-2013, compared to 121 in 2011-2012 (+33 = 27% increase).

II D. Degree Programs No Longer on Probation

For the current reporting year, a total of nine (9) programs which had been on probation in the technical colleges for last year's reporting period have been recommended by the State Technical College System for placement in *Good* standing. In this group there are three programs in Engineering Technology (STEM), three in Manufacturing, and one each in Instructional Technology, Finance, and Business. The degrees and institutional locales of all the programs moving from *Probation* to *Good* are in **Table 8**. Engineering Technology programs accounted for one third of the programs moving from *Probation* to *Good* status.

Table 8 Degree Programs Returning to *Good* Status from *Probation* 2012-2013 (=9)

College	Degree	Program
Denmark Technical College	IT	Computer Technology
Greenville Technical College	FIN	Accounting
Greenville Technical College	BUS	Administrative Office Technology
Midlands Technical College	MFG	Machine Tool Technology
Piedmont Technical College	STEM	General Engineering Technology
Piedmont Technical College	STEM	Mechanical Engineering Technology
Tri-County Technical College	MFG	Heating, Vent., and Air Cond. Technology
Trident Technical College	MFG	Aircraft Maintenance Technology
Trident Technical College	STEM	Mechanical Engineering Technology

II E. Tabular Analysis of Associate Degree Programs

Table 9 shows the programs in the Technical College System for this period which are on suspension. It is noteworthy that there are only two programs in this category, a fact which suggests that planning by the Technical College System for technical programs, based upon community and business demand for graduates in certain fields, has minimized the need to suspend and cancel programs.

Table 9 Associate Degree Programs on Suspension in 2013 (or Continued for 1st or 2nd Year Suspension) (=2)

College	Degree	Program
First Year:		
Aiken Technical College	BUS	Administrative Office Technology
Spartanburg Technical College	STEM	Civil Engineering Technology

III. Analysis of Job Placement and Continued Education for Completers

III A. The University of South Carolina System

As noted, associate degree programs satisfy the job placement and continuing education criterion when fifty percent (50%) or more of their available graduates[8] are employed in fields related to their education, or are continuing their studies on a full-time basis.[9] For the current reporting cycle (AY 2012-2013), all associate degree programs in the University of South Carolina system satisfy this benchmark. Between the two trajectories of job placement and continued studies, three of the six USC campuses produce more graduates that immediately enter the workforce than graduates that continue immediately with full-time studies: USC Beaufort, USC Columbia, and USC Union. The remaining three campuses produce more graduates that immediately continue with full-time studies than graduates that enter the workforce: USC Lancaster, USC Salkehatchie, and USC Sumter.

[8] For reporting accuracy, the CHE annual evaluation aligns with both the SC Technical College System and the USC system, reporting on "Available Graduates" instead of "Total Graduates" for a specific academic year. *Available* Graduates are a subset of Total Graduates and equal the total number of graduates for a specific year, here 2013, minus "Graduates Excluded," who are identified as either "deceased, disabled or were not actively seeking employment." Source: SC Technical College System, *Program Evaluation Legend of Abbreviations and Terms for the College Exhibits*, November 2015. N.B. A review of the data confirms that Available Graduates always equal 90% to 100% of Total Graduates: 100% for the six USC campuses and 97% or higher for 14 of the 16 SCTCS institutions.
[9] P.2.

Identifying the reasons for these outcomes requires continued inquiry. However, strong correlations are evident.

2012-2013 Graduating Class Size

As **Table 10** shows, generally, the smaller the number of associate degree graduates from a USC system campus (column 1), the greater the percentage of these graduates that entered the workforce versus full-time school (columns 3 and 4). This is the case for the three system campuses noted. USC Beaufort and USC Columbia identified four (4) graduates each as "available for employment or transfer" (meaning, transfer to another campus to continue full-time studies). Fifty percent (50%: N=2) at USC Beaufort and 75% (N=3) at USC Columbia entered the workforce. USC Union reported considerably more graduates, 58, as available and 48% of them (N=28) entered the workforce.

However, the three USC campuses with the largest number of graduates available yielded higher percentages of graduates that continued in full-time studies after earning their associate degrees as opposed to entering the workforce. Of these, the USC Sumter pool of 84 available graduates was the smallest, but still 26 more (+44%) than the 58 at USC Union. Of Sumter's 84 available graduates, 37 were enrolled in full-time studies (44%), with only 26 in the workforce (31%). The status of the remaining 25% is unknown based on their responses to the USC inquiry.

USC Salkehatchie posted the class of graduates next largest by count available at the end of the 2012-2013 academic year. Of 118 associate degree completers, 80 pursued additional education full-time (68%), and 32 entered the workforce (27%). Again, the status of the remaining 5% is unknown.

The University of South Carolina at Lancaster posted the largest number of associate degree graduates available for employment or academic transfer among all the campuses in the USC system. The four associate degree programs in General Arts & Science, Criminal Justice, Nursing and General Business combined to produce 160 graduates after the 2012-2013 academic year. Seventy (70) of the graduates (44%) transferred to continue full-time studies. Forty-six (46 = 29%) entered the workforce. Among the four programs at USC Lancaster, the greater number of graduates continued full-time studies as opposed to entering the workforce after graduating from three programs: General Arts & Science, Criminal Justice, and General Business. Nursing was the single program with more graduates entering the workforce, indeed all (7 of 7 = 100% placement), with none continuing immediately with post-associate degree full-time studies (0 of 7).

Table 10 Placement Benchmark for the University of South Carolina System

USC Campus	Graduates Available	Graduates Employed in a Related Field	Graduates Pursuing Additional Full-Time Studies	Total Employed or Enrolled (Column 3+4)	Placement Percentage (of Column 5)
Beaufort	4	2	1	3	75
Columbia	4	3	0	3	75
Union	58	28	24	52	90
Sumter	84	26	37	63	75
Salkehatchie	118	32	80	112	95
Lancaster	160	46	70	116	74

Degree Program Discipline versus Location

All of the USC system campuses offer the associate degree in General Arts & Science, and five of the six only offer this major. Only USC Lancaster offers additional majors, as noted, in Criminal Justice, Nursing and General Business. With the numbers of completers in General Arts & Science spanning from a low tally of four (4 each at Beaufort and Columbia) to as many as 118 (Salkehatchie), there is no correlation between the type of major offered and the number of students completing its curriculum. Therefore, no inference can be made from the data available of comparative student interest statewide in the General Arts & Science degree as offered in the USC system.

However, notable about the USC system data is that the General Arts & Science degree program consistently yields its strongest numbers of completers at two campuses in areas responding to high economic and workforce development needs[10]: USC Lancaster in Lancaster County and USC Salkehatchie Allendale County, graduating between 85 and 135 completers each year since 2010-2011. Moreover, the two USC system campuses graduating the least number of General Arts & Science completers each year are USC Beaufort and USC Columbia, graduating between three (3) and seven (7) annually since 2010-2011. Important to recall about the associate programs at USC Beaufort and USC Columbia is that both are offered on military bases, with considerable competition from other institutions in-state and out-of-state that market strategically to servicemen and servicewomen. Again, both campuses have made a case for maintaining program offerings at the Marine Corp Air Station (USC Beaufort) and Fort Jackson (USC Columbia), respectively. This assessment does suggest, however, that renewed dialogues may be warranted to appraise best strategies to recruit students among their respective local military populations to catalyze and sustain notable long-term growth.

III B. The South Carolina Technical College System

Of the 293 associate degree programs evaluated in the SC Technical College System for 2012-2013, 291 appear to satisfy the workforce and full-time studies benchmark for graduate placement. The data available identifies students working or in school, with “in school” meaning both full-time and part-time enrollment, as opposed to full-time alone. As Table 11 shows, all of the 16 institutions placed a high percentage of their graduates in jobs or full-time studies, satisfying the 50% threshold by wide margins. Aiken Technical College and The Technical College of the Lowcountry are distinguished with the state’s highest placement rate, 97%. Trident Technical College, Greenville Tech and Midlands Tech place the highest headcounts with over 3200 graduates entering the workforce or continuing full-time studies (1452+880+879=3211). Overall, the 16 Technical College System institutions average over an 89% placement rate for their graduates.

[10] Business Intelligence Department, S.C. DEW. "Community Profile - Lancaster County." December 17, 2014. Accessed January 26, 2015. http://lmi.dew.sc.gov/lmi site/Documents/CommunityProfiles/04000057.pdf.
"Monthly Unemployment Rates Ranked By County." Monthly Unemployment Rates Ranked By County. December 19, 2014. Accessed January 26, 2015. http://www.eascinc.com/unemployment_rate.html.
"Allendale County QuickFacts." Allendale County QuickFacts from the US Census Bureau. December 4, 2014. Accessed January 26, 2015. http://quickfacts.census.gov/qfd/states/45/45005.html.

Table 11 Placement Benchmark for the SC Technical College System

Institution	Total Placed	Percentage Placed
Aiken Tech	289	**97**
Central Carolina	274	94
Denmark	67	74
Florence-Darlington	474	93
Greenville	**880**	78
Horry-Georgetown	743	93
Midlands	**879**	84
Northeastern	120	92
Orangeburg-Calhoun	256	95
Piedmont	486	85
Spartanburg Community College	403	87
Lowcountry	177	**97**
Tri-County	492	82
Trident	**1452**	90
Williamsburg	55	92
York	370	93
TOTAL PLACEMENT	**7417**	**AVERAGE 89%**

The two programs that did not immediately place available graduates in discipline-related jobs or continued full-time studies differ significantly from each other by field and recent productivity history, therefore availing no apparent correlations to infer common factors in their performance. As noted, Criminal Justice Technology, a law discipline at Greenville Technical College, was on probation in 2013.[11] However, 2013 was its first probationary year, with only 40% of the program's graduates placing immediately in continuing full-time studies or a job related to the discipline. For the two previous reporting years, 2011 and 2012, the program was in Good status, signifying again that the placement decline was a new development.

Contrary to this, the associate program in Civil Engineering Technology, a STEM discipline at Spartanburg Community College (SCC), was in its third and final year of probation in 2011 and moved to suspension in 2012 and 2013, the two most recent years available. As noted in the introduction of this report, "suspension means that the program's inability to meet the minimum criteria is serious enough to discontinue temporarily the enrollment of new students in the program until the institution can study the need and demand for the program. A program may remain on suspension for three years." While SCC no longer publishes the program as an available curriculum[12], forthcoming annual evaluation data from the Technical College System will confirm its status.

A final observation concerning the associate degree programs offered at the technical colleges is that while all 16 institutions demonstrate exceptional institutional placement rates, among their 293 majors evaluated this cycle, there is a small complement of associate degree programs that are not failing but are not substantially outpacing the 50% placement threshold either. Nine (9) successful associate degree programs are within 10 percentage points of the 50% placement requirement to

[11] P.6

[12] "Credit and Degree Programs": Spartanburg Community College. Accessed January 22, 2015. https://www.sccsc.edu/credit-programs/.

avoid probation, meaning only fifty (50) to fifty-nine (59) percent of their 2013 graduates found immediate placement in a job related to their degree discipline or continued in full-time studies. Surpassing the 50% success threshold means this is no cause for alarm. However, surpassing it at this rate means these programs require urgent renewed productivity reviews, which the institutions may have initiated already. As an example, for a degree program that annually produces 25 to 30 completers but places 59% of them or less in jobs or continued full-time studies, if only three more available graduates did not find placement in a given year, the program enters probation. Whether such a liminal performance is an aberration or a recent trend, leaders of degree programs should consider investigating actionable best practices for implementation that will elevate the graduates' jobs and full-time studies placement success from proximity to programmatic probation to a more prosperous posture that can generate new graduation, placement and recruitment momentum.

IV. Summary

The associate degree programs in the USC system and the Technical College System are overwhelmingly meeting statewide productivity standards which have been reported annually since 1983. Two hundred and eighty-three (283) of the 293 technical college programs evaluated meet the *Good* status requirements for this reporting year. Additionally, seven (7) of the nine (9) associate degree programs in the University of South Carolina system meet the *Good* status requirements for this reporting year. The two exceptions are the associate degree programs at USC Beaufort and USC Columbia. As noted on pages 3 and 4, these programs need the continued implementation of proactive efforts to establish and sustain effectiveness above current productivity thresholds.

Similarly, analysis of programs in the Technical College System also suggests that despite improvement in the nine (9) degree programs that progressed to *Good* status, efforts need to continue to bolster enrollments and graduations in Engineering Technology, a field important to the State's economic development.

Recommendation

The Committee on Academic Affairs and Licensing commends favorably to the Commission this report's designation of programs for the current reporting year as shown in **Tables 1, 3, 4, 6, 8, 9, 10 and 11.** Because of the importance of certain associate degree programs to economic development in South Carolina, the Committee further recommends that the Commission encourage the State Technical College system to continue to explore ways to increase enrollments and retention to graduation in programs in Engineering Technology, and to explore means to improve job placement and continuation to full-time studies for programs where needed. Furthermore the recommendation includes an encouragement for the USC system campuses in Beaufort and Columbia to explore ways to increase enrollment, graduation and placement in their associate degree programs.

Given the present economic situation, it is imperative that the technical colleges and the University of South Carolina regional campuses work collaboratively to increase the numbers of associate degree completers and prepare them for entry into a four-year program. A learned and skilled workforce is essential to economic prosperity for any state and will promote a pervasive education culture in South Carolina.

South Carolina
Commission on Higher Education

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Dr. Richard C. Sutton
Executive Director

CHE
2/5/2015
Agenda Item 8.02.E

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne, Chair, and Members, Committee on Academic Affairs and Licensing

New Federal *Improving Teacher Quality* Competitive Grants Awards, FY 2015-16

Background

Since 1984, the Commission on Higher Education has been responsible for administering federal funds under a Title II program of *The Elementary and Secondary Education Act (ESEA)*. In 2001, the federal legislation was re-authorized under the *No Child Left Behind Act (NCLB)*. Title II, Part A of NCLB, entitled *Preparing, Training, and Recruiting High-Quality Teachers and Principals,* authorizes the Commission to conduct a competitive awards program to provide support to increase student academic achievement through strategies such as improving teacher and principal quality and increasing the number of highly qualified teachers in the classroom and highly qualified principals and assistant principals in schools.

The No Child Left Behind Act of 2001 (PL107-110) authorizes the South Carolina Commission on Higher Education to conduct a competitive awards program under Title II Part A *Preparing, Training, and Recruiting High-Quality Teachers and Principals.* The purpose of this part of the federal legislation is to provide support to increase student academic achievement through strategies such as improving teacher and principal quality and increasing the number of highly qualified teachers in the classroom and highly qualified principals and assistant principals in schools.

The Commission is authorized to provide a competitive grants program to federally required partnerships comprised, at a minimum, of schools of education and divisions of arts and sciences from higher education institutions along with one or more high-need local education agency (LEA). Funds to the state are allocated based on the FY 2001 amount received under the former Eisenhower Professional Development and Class-Size Reduction programs. Any remaining funds from the federal appropriation are distributed through a formula based on the

State's school-age population and percent of these children in families with incomes below the poverty level.

The Improving Teacher Quality (ITQ) Program provides the Commission with the ability to expand its professional development offerings to the P-12 community to nine content areas and other school personnel. The program seeks to bring together higher education faculty and P-12 school personnel to foster mutually beneficial partnerships based on sustained professional development. The purpose of the ITQ project is to improve teacher content knowledge in the subject areas they teach. The ultimate goal of the partnership is improved student performance.

Under federal regulations, 2.5 percent of the *Improving Teacher Quality Higher Education Grants* (ITQ) funds for the state is allocated to the Commission to be used for the competitive grants program. The Commission is expected to receive $698,415 with which to make Federal FY 2014-2015 awards. Projects could request up to $150,000 to conduct professional development projects in mathematics and science content for FY 2015-16. Staff sought proposals that would have maximum impact on improving teacher content knowledge and improving student achievement. The number of grants awarded was determined primarily by the quality of the proposals submitted No proposal was considered unless it met the minimum federal definition of a partnership (as stated in the *ITQ Guidelines* and in the *Federal Title II Non-Regulatory Guidance*).

Review Panel Recommendations

A review panel consisting of higher education representatives, a state department of education associate, and the regional coordinator of the S2TEM Centers, (**Attachment 1**) met on November 7, 2014, to review and rate the ten proposals submitted for consideration for funding. Six fundable projects were identified by the FY 2015-16 review panel (**Attachment 2**) because of their success in meeting the stated goals and objectives in their original proposals, for appropriate activities as identified by the federal guidelines, and the geographic representation. The funding amount for the recommended awards for FY 2015-16 is $699,595 contingent upon availability of funds from the federal government. The six proposals recommended for funding will allow teachers in eight school districts to receive professional development in mathematics or science content. The abstract for each of the six projects recommended for funding is included in **Attachment 3**. A map (**Attachment 4**) is attached which shows the high-needs LEAs that are eligible to participate in the Improving Teacher Quality Grant programs based on federal guidelines. The school districts shaded in green are part of the proposals recommended for funding. Proposals were selected based on a review of the written proposal and a 30-minute oral presentation. Each review panel member submitted their scores from the written review and the oral presentation. These scores were combined for a total score and proposals were ranked from highest to lowest.

The Committee on Academic Affairs and Licensing approved the recommendation of the external review panel at its meeting on January 8, 2015.

Attachment 1

ITQ Review Panel 2014-2015
November 7, 2014
8:30 am – 6:00 pm

Dr. Linda Payne *Physics* Regional Coordinator S2TEM Centers SC 3250 Saint Matthews Road Orangeburg, SC 29118 803-928-6225 lpayne@scsu.edu ***K-12 STEM***	**Ms. Lindsay Boozer** *Secondary Mathematics* *Education* Associate Division of School Effectiveness S.C. Department of Education 1429 Senate Street Columbia, SC 29201 803-737-4702 lboozer@ed.sc.gov ***SCDE***	**Dr. Mike Svec** *Science Education* Associate Professor Department of Education Furman University 3300 Poinsett Highway Greenville, SC 29613 michael.svec@furman.edu ***Private Higher Education***
Dr. Cynthia Gardner *Science Education* Assistant Professor School of Education Lander University 320 Stanley Avenue Greenwood, SC 29649 864-388-8025 cgardner@lander.edu ***Public Higher Education***	**Dr. Sharon O'Kelley** *Mathematics* Assistant Professor Department of Mathematics Francis Marion University P.O. Box 100547 Florence, SC 29502-0547 843-661-1579 sokelley@fmarion.edu ***Public Higher Education***	**Ms. Renee Stubbs** *Mathematics* Associate Professor Department of Mathematics Newberry College 2100 College Street Newberry, SC 29108 renee.stubbs@newberry.edu ***Private Higher Education***
Mrs. Theresa Davis *Mathematics* Assistant Professor Department of Mathematics Claflin University 400 Magnolia Avenue Orangeburg, SC 29115 tdavis@claflin.edu **Private Higher Education**	**Dr. Tom Reid** *Mathematics* Associate Professor Department of Mathematics 471 University Parkway Aiken, SC 29801 803-641-3536 W 803-648-2350 H 803-257-6434 C thomasr@usca.edu ***Public Higher Education***	*Staff Support* **Dr. Paula A. Gregg** **Dr. Rachel Harvey** Academic Affairs SC Commission on ***Higher Education*** 1122 Lady Street, Suite 300 Columbia, SC 29201 ***CHE***

Attachment 2

Improving Teacher Quality Higher Education Proposals Submitted
FY 2015-16

Name	Institution	Project Name	School Districts	Funding Requested	Funding Awarded	Recommended for Funding
Dr. Christine Lotter/Dr. Nathan Carnes	USC Columbia	*Life Science Connections*	Sumter, Lexington 2, Richland 2	$ 149,994.00	$ 123,099.00	Yes
Dr. Stephen Thompson	USC Columbia	*Nature-Based Inquiry Utilizing a STEAM Approach (NBI)*	Richland 1	$ 148,173.00	$ 121,606.00	Yes
Dr. Joanna Stegall/Dr. Gilbert Eyabi	Anderson University	*Elementary Teacher Training in Algebra (ETTA)*	Anderson 5	$ 117,208.36	$ 117,312.00	Yes
Dr. Ryan Visser/Dr. Matthew Boyer	Clemson University	*Project HOMS: Hands-On, Making Science*	Fairfield	$ 135,349.00	$ 111,090.00	Yes
Dr. Jerry Mitchell/Dr. George Roy	USC Columbia	*Geospatial Technology for Geography, Mathematics, and Science*	Saluda	$ 103,279.00	$ 103,384.00	Yes
Dr. Cynthia Deaton	Clemson University	*iScience: Inquiry Science with Mobile Learning*	Spartanburg 7	$ 150,000.00	$ 123,104.00	Yes
Dr. Patty Hambrick	Charleston Southern	*BRIMS: Beginning Robotics by Integrating Mathematics an Science*	Dorchester 4	$ 150,000.00	-	No
Dr. Calvin Williams/Dr. Nicole Bannister	Clemson University	*Understanding Math by Design*	Abbeville, Greenwood 51	$ 150,000.00	-	No
Dr. mutindi ndunda/Dr. Quinn Burke	College of Charleston	*Algorithmic Literacies: The Intersection of Math & Literacy through Students' Programming Interactive Stories*	Charleston	$ 150,000.00	-	No
Dr. Cassie Quigley/Dr. Danielle Herro	Clemson University	*Mapping Our Future: Improving Middle/High School Instructors Science Content Knowledge*	Charleston	$ 149,914.00	-	No
				$1,403,917.36	**$699,595.00**	

Attachment 3

Anderson University: Joanna Stegall & Gilbert Eyabi
Elementary Teacher Training in Algebra (ETTA)

Abstract

Mathematics PASS scores (2013-14) indicate that almost half of all the Anderson County School District Five elementary students scored below proficient. At the secondary level, student pass rate on the Algebra I End-of-Course exam is among the lowest in the state. A needs assessment conducted at the partnering district's Title One elementary schools illustrates the necessity for professional development in algebra skills. The teachers averaged 38% on a measure of algebra skills and; the majority of the teachers (N=72) volunteered for algebra training.

Dr. Stegall (College of Education) and Dr. Eyabi (College of Arts and Sciences) at Anderson University are partnering with the high needs school district to submit the ITQ Grant Proposal, *Elementary Teacher Training in Algebra* (ETTA). Activities that promote conceptual understanding within algebra, including faction number sense and proportional reasoning will be taught to district public and private elementary school teachers. *ETTA* will focus on improving the mathematical content knowledge of the teachers through a focus on building their conceptual understanding.

Assessments will include formative measures (pre/posttest and Algebra Content Analysis measures) for increased algebra knowledge. Videos of teaching with self-assessments, teacher reflections, and mathematics teacher efficacy survey will be used to identify changes in pedagogy and efficacy. Also, student math performance on PASS will be compared in the treatment and controlled classrooms.

Clemson University: Cynthia Deaton

iScience: Inquiry Science with Mobile Learning

Abstract

In order to succeed in a 21st century society, science education should focus on providing and supporting the scientific and technological knowledge of our teachers and students. iScience aims to address this need through a deliberate and focused partnership with Spartanburg School District 7 where targeted science content needs are addressed through a series of professional development interactions. Following needs assessments, conducted in collaboration with Spartanburg 7 district officials and teachers, iScience is designed to address the science content needs of teachers and to promote effective technological integration of iPads and iPad applications. This professional development will involve 24 teachers from elementary schools in Spartanburg 7, who will meet monthly in both face-to-face and online contexts over an eighteen-month period. iScience is a two phases professional development that will target Earth System Science (ESS): Phase I will address content and pedagogical content knowledge regarding Earth's lithosphere and hydrosphere, as it supports mobile learning integration; Phase II will build on the technological and integrative skills that were the focus of Phase I and explore content topics on Earth's hydrosphere, biosphere, and interactions among these systems. Throughout both phases, teachers will be guided toward critical reflection on their science teaching, science content knowledge, and technology integration as they build an outcomes-based approach to teaching based on evidence of practice.

Clemson University: Ryan Visser & Matthew Boyer

Project HOMS: Hands-on, Making Science

Abstract

This project proposal focuses on using the affordances of the *Maker Movement* to address learning goals and South Carolina standards for science in the upper elementary grades. The proposal is the result of a collaborative planning effort among Education and Science faculty at Clemson University, educators at Fairfield school district, and an external evaluation group. Together, we developed a project that focuses on improving teacher's science content knowledge through the integration of hands-on learning with a range of virtual and physical tools to support content related to STEM fields. In particular, the project will focus on Scientific Inquiry and Physical and Earth Sciences, which were selected as a result of the data collected via our online survey designed to assess the science-related needs of Fairfield educators. Learning activities will employ a Maker approach, which is built on participation, construction, iterative prototyping, design, and technology integration. We believe that bringing Maker culture into STEM education provides important opportunities for improving student engagement, interest, and learning.

We are proposing a two-year project, working with teachers through a combination of virtual collaboration, academic year site visits, and summer professional development (PD). The PD will be guided by the research-backed TPACK model, in which we will focus on the area in which content, pedagogical and technological knowledge overlap. By situating teachers' use of technology in their learning about subject area pedagogical methods, we believe that we are building toward an effective and successful implementation of STEM learning practices and technology integration.

University of South Carolina Columbia: Christine Lotter & Nathan Carnes

Life Science Connections

Abstract

The University of South Carolina College of Education, College of Arts and Science and School of Medicine have collaborated with two local high need school districts (Lexington 2 and Sumter) and Richland School District 2 to develop the *Life Science Connections* professional development project that will improve the life science content knowledge and instructional practices of South Carolina middle and high school science teachers. The professional development begins with an intensive one-week workshop at the USC Ultrasound Institute that will strengthen the 25 teachers' science content knowledge through participation in project-based inquiry lessons and content instruction aligned with the 2014 South Carolina life science standards. Teachers will learn both content and instructional skills through their participation in the inquiry lessons and their interaction with USC science and education faculty. Interactive science investigations that utilize ultrasound technology, hands-on investigations, and science practices (modeling, argumentation) will serve as models of inquiry techniques that the teachers can incorporate into their own classrooms to improve their students' science achievement. The professional development continues with the teachers enacting their workshop-developed unit with their students during the academic year. Four follow-up workshops, classroom observations, and in-classroom instructional coaching will continue during the academic year to help teachers in the implementation of these instructional strategies and further strengthen their content knowledge. Teachers will participate in a second one-week summer workshop the following summer in which they will gain additional life science content and work in cooperative groups to design a second problem-based unit for their students.

University of South Carolina Columbia: Stephen Thompson

Nature-Based Inquiry Utilizing a STEAM Approach (NBI)

Abstract

The NBI program is a collaborative between the University of South Carolina, Richland County School District One, and local community partners. The new science standards emphasize the need to engage students in problem solving activities that mimic the work of scientists and engineers. Scientific inquiry and engineering design involve the integration of technologies and the arts, and work in these fields is multi-disciplinary in nature. Thus, the NBI program utilizes a Problem-Based Learning (PBL) approach that emphasizes the integration of science, technology, engineering, arts, and mathematics (STEAM). Project activities show teachers 1) how to mimic science and engineering work "in the field" by utilizing PBL strategies in outdoor spaces during science instruction, and 2) how to integrate technology in ways that engage *all* students in science and engineering practices through the use of electronic notebooks. Thirty elementary science teachers will take part in weeklong summer workshops (over two summers) consisting of sessions that (a) immerse teachers in model PBL activities; (b) demonstrate PBL strategies and techniques; (c) provide grade level science content; and (d) show how PBL lessons/content are connected to the work of local community groups (i.e., City Roots Urban Farm, Congaree National Park, USC Herbarium). Each summer participants will develop PBL units to implement during the academic year. NBI staff/community-based partners will support PBL unit implementation during the academic year. Participants will also take part in academic-year Saturday workshops that extend the summer work and provide additional support for PBL unit implementation.

University of South Carolina Columbia: Jerry Mitchell

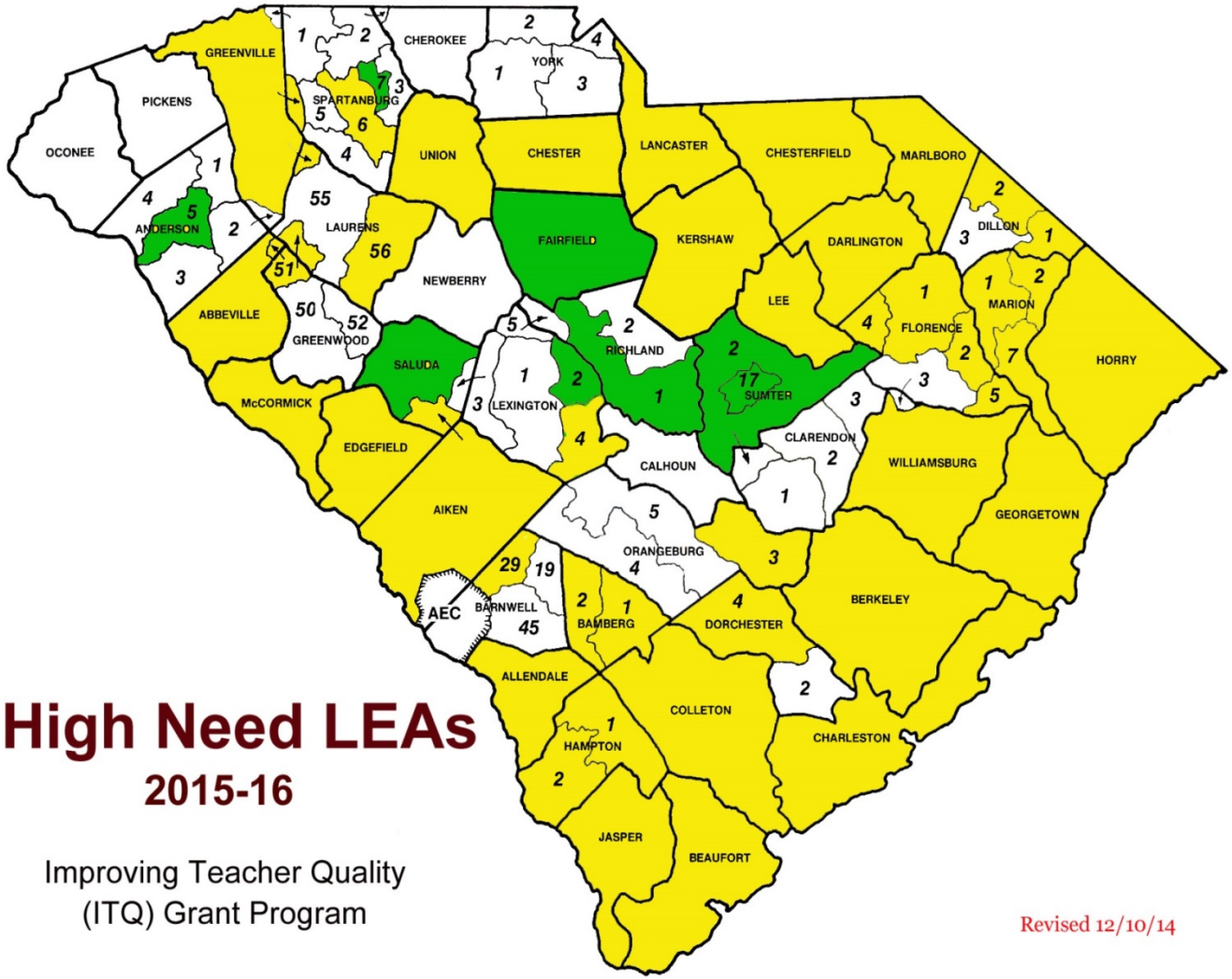
Geospatial Technology for Geography, Mathematics, and Science

Abstract

Technology integration in the K-12 classroom still focuses mainly on technology knowledge and skills, overlooking the critical connections between technology, pedagogy, and content. As a consequence, teachers may learn about "flashy" technology tools without knowing how to appropriately incorporate technology as well as how the technology can be used in their unique settings/disciplinary areas. Through this project, partners from the University of South Carolina Department of Geography and Department of Instruction and Teacher Education, along with Saluda County Schools, will deepen content knowledge of science, mathematics, and geography by integrating web-based GIS technologies, such as Esri's ArcGIS Explore Online, to the existing 6-12 grades curriculum. The project team will develop technology-enhanced, inquiry-based lessons, in which participants and their students use GIS technologies to analyze, visualize, and present their data.

During the project period, project participants will be trained in geospatial technologies aligned to state academic standards and their curriculum. Project partners will work together to design optimal learning experiences for these professional development opportunities, which will include segments on geographic information systems, cartographic visualization, STEM, and integrated lesson development.

The project will increase the number of well-prepared teachers in the participating LEA by focusing on two important areas of need for school teachers in Saluda County Schools: 1) increasing content knowledge, and 2) improving competency with technology.



High Need LEAs

2015-16

Improving Teacher Quality
(ITQ) Grant Program

Revised 12/10/14

	2015-16 Awards
	Eligible Districts

South Carolina
Commission on Higher Education

Brig Gen John L. Finan, USAF (Ret.), Chair
Dr. Bettie Rose Horne, Vice Chair
Ms. Natasha M. Hanna
Ms. Dianne C. Kuhl
Ms. Leah B. Moody
Vice Admiral Charles Munns, USN (ret.)
Mr. Kim F. Phillips
Ms. Terrye C. Seckinger
Dr. Jennifer B. Settlemyer
Mr. Hood Temple

Dr. Richard C. Sutton
Executive Director

CHE
2/5/2015
Agenda Item 8.02.F

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne and Members, Committee on Academic Affairs and Licensing

Information Report on Staff-Approved Modifications

The table below shows academic program modification actions that occurred from August 1, 2014 to December 31, 2014.

Institution	Program	Modification
Clemson University	M.S., Ph.D., Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Environmental Engineering and Science, Industrial Engineering, Materials Science and Engineering, and Mechanical Engineering; M.F.A., Digital Production Arts; M.ENG., Electrical Engineering, Industrial Engineering, and Systems Engineering	Offer programs at the Clemson University Restoration Institute, North Charleston, SC, and the Lowcountry Graduate Center, North Charleston, SC
Medical University of South Carolina	Ph.D., Nursing Science	Develop into accelerated program
Winthrop University	B.S., Chemistry	Add concentrations in ACS Chemistry, ACS Biochemistry, ACS Engineering-Physics, ACS Forensic Chemistry, ACS Chemistry-Business, Biochemistry, and Multidisciplinary Chemistry
Winthrop University	M.A.T., Dance	Add teacher certification program in Dance
Winthrop University	M.A.T., Theatre	Add teacher certification program in Theatre
Winthrop University	M.Ed., Special Education	Develop into M.Ed. in Special Education Intervention
Winthrop University	M.F.A., Art and Design	Develop into M.F.A. in Studio Art

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Dr. Richard C. Sutton
Executive Director

CHE
2/5/15
Agenda Item 8.02.G

February 5, 2015

MEMORANDUM

To: Chairman John L. Finan and Members, S.C. Commission on Higher Education

From: Dr. Bettie Rose Horne, Chair, and Members, Committee on Academic Affairs and Licensing

Coastal Carolina University Mission Statement Revision

Background

Coastal Carolina University has requested that Commission staff approve a change to its mission statement. Coastal Carolina University's current mission statement, revised mission statement, and markup copy with changes shown are attached.

University officials first contacted CHE staff in July 2014 concerning the process for amending the mission statement. The Coastal Carolina University Board of Trustees approved the revised mission statement at its meeting on July 19, 2014. University officials submitted a request to CHE staff in September 2014 but, due to a technological error, those documents were lost. Coastal resubmitted the documents to amend its mission on January 2, 2015. The requested revisions eliminate the reference to the number of students served, provide a more general description of undergraduate and graduate programs offered, and make minor editorial changes.

Commission staff determined that the changes were minor (non-substantive), as defined by the policy, which reads "minor revisions are those revisions which do not change the nature, function, type, or sector of the institution."[1] According to the policy, minor revisions must be considered for approval by CHE staff within the Division of Academic Affairs, with such approvals presented to the Committee on Academic Affairs and Licensing as information.

However, given the increased attention paid to institutional mission statements, the Committee on Academic Affairs and Licensing respectfully submits this information to the Commission as a courtesy so that Commissioners are aware that this revision has been approved.

[1] *Policy and Procedures for Approval of New or Revised Mission Statements* (Approved by the Commission on October 6, 2005). http://www.che.sc.gov/CHE_Docs/AcademicAffairs/Mission_Statement_Policy-CHE_Approved_A-11.pdf

Appendix I

A) Coastal Carolina University Current Mission Statement

Original approved by the Coastal Carolina University Board of Trustees on April 18, 1997.
Update adopted by the Coastal Carolina University Board of Trustees on June 7, 2012.
Update approved by the Commission on Higher Education on October 4, 2012.
Update adopted by the Coastal Carolina University Board of Trustees on July 19, 2013.
Update approved by the SC Commission on Higher Education on October 3, 2013

Coastal Carolina University is a public comprehensive liberal arts institution that seeks to develop students who are both knowledgeable in their chosen fields and prepared to be productive, responsible, healthy citizens with a global perspective. To deliver on this commitment, Coastal Carolina recruits highly qualified and motivated students, faculty, and staff from the region, state, nation, and world to create a diverse and dynamic student-centered learning environment.

Because Coastal Carolina embraces the teacher-scholar model, it places primary emphasis on high quality teaching and engaged learning, and it supports faculty research, creative activities, and expert collaboration in the community, state, nation and world. This focus enables faculty and staff to mentor students in collaborative research, creative opportunities, and internships. To nurture this active learning community, Coastal Carolina maintains a broad range of contemporary technologies, programming, support services, and innovative course offerings and delivery methods. The result is alumni who are well prepared for professional careers or graduate programs in their chosen fields and who continue to be connected to Coastal Carolina.

Inspired by its founding in 1954 to serve the educational needs of the immediate area, Coastal Carolina has grown with the region to become a mid-sized regional comprehensive university with a tradition of a strong liberal arts core. As such, Coastal Carolina commits its resources to maintaining a population of 8,000 – 12,000 students by building baccalaureate; selective master's and specialist programs of national and/or regional significance in the arts and sciences, business, humanities, education, and health and human services; and a Ph.D. program in Marine Science. Coastal Carolina fully embraces its leadership role as a regional center of economic and intellectual resources, lifelong learning, cultural and recreational opportunities, and athletic programs.

As Coastal Carolina executes this mission, it recognizes its responsibility to be a role model to the community and to the professions by assuring fair and honest treatment of people with whom it interacts and sustainable stewardship of resources entrusted to it, adopting the highest standards of integrity and accountability, and in committing itself to excellence through continuous assessment and improvement.

B) Coastal Carolina University Mission Statement As Approved by the Coastal Carolina University Board of Trustees July 19, 2014

Original approved by the Coastal Carolina University Board of Trustees on April 18, 1997.
Update adopted by the Coastal Carolina University Board of Trustees on June 7, 2012.
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C) Coastal Carolina University Mission Statement As Approved by the Coastal Carolina University Board of Trustees July 19, 2014 with Changes Shown

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