

**New Program Proposal
 Bachelor of Science in Applied Statistics
 Coastal Carolina University**

Summary

Coastal Carolina University requests approval to offer a program leading to the Bachelor of Science in Applied Statistics, to be implemented in Fall 2019 through traditional delivery. The following chart outlines the stages of approval for the proposal. The Advisory Committee on Academic Programs (ACAP) voted to recommend approval of the proposal. The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Proposal Received	1/31/19	Not Applicable.
Staff comments to the institution	2/28/19	Staff requested revisions to the proposal in preparation for the ACAP meeting to address questions regarding: <ul style="list-style-type: none"> ▪ Updates for Institutional Approval dates; ▪ Incorporation of feedback from interested students and prospective employers for the proposed major; ▪ More elaboration on expected attrition and graduation rate calculations; ▪ Clarification on new equipment cost in the budget line; ▪ Inclusion of program objectives and methods to track employment; and ▪ Opportunities for stackable credentials.
ACAP Consideration	3/28/19	Representatives from Coastal Carolina University (CCU) introduced the proposal concurrent with the BS in Public Health and BA in Religious Studies, citing that the minor in Statistics and the minor in the Religion programs sustained enough enrollment to warrant the creation of a standalone program with relatively few courses that would need to be added. Members of the Advisory Committee on Academic Programs (ACAP) discussed the proposals. Minimal new coursework and expansion of the current minor in Statistics meant minimal new overhead costs for new degree program implementation (faculty recruitment, facilities, or student services). After remaining discussion, ACAP voted to approve the program proposal. Staff transmitted remaining questions for additional clarity.

Staff comments to the institution	4/5/19	Staff requested the proposal be revised to include: <ul style="list-style-type: none"> ▪ Prospective employer feedback if available; ▪ Determination if enrollment after the first semester includes attrition rates; ▪ The current physical resources and facilities expected to support the proposed program; and ▪ Opportunities for stackable credentials.
Revised Program Proposal Received	4/17/19	The revised proposal satisfactorily addressed the requests with an option for students to obtain a base SAS certificate if desired.

Recommendation

The staff recommends the Committee on Academic Affairs and Licensing approve the program leading to the Bachelor of Science in Applied Statistics, to be implemented in Fall 2019.

Coastal Carolina University Student and Program Data

Undergraduate In-State/Out-of-State Enrollment Fall 2018	5,771 (58.19%)/4,146(41.48%)
Number of Approved Programs in 10 Yrs. (FY 2009- 2018)	30
Number of Terminated Programs in 10 Yrs. (FY 2009- 2018)	6

Industry Related Occupational Wages and Projections in South Carolina, 2016 – 2026*

Occupational Field ¹	2016 Median Income ²	2016 Estimated Employment ³	2026 Projected Employment	Total 2016-2026 Employment Change	2016-2026 Annual Avg. Percent Change	Total Percent Change
Computer and Mathematical	\$66,270	39,597	45,397	5,800	1.38%	14.65%

¹ "Occupational Field" represents the closest related occupation category that includes the occupations aligned with the program proposal. ² SC Department of Employment & Workforce (DEW), Labor Market Information. (2018). Occupational Employment and Wage Rates (OES) for All Major Groups in South Carolina in 2016 [Data file]. Retrieved from <https://jobs.scworks.org/vosnet/lmi/default.aspx?pu=1> ³ SC Department of Employment & Workforce (DEW), Labor Market Information. (2018). Occupational Projections (Long-term) for Multiple Occupations in South Carolina in 2016-2026 [Data file]. Retrieved from <https://jobs.scworks.org/vosnet/lmi/default.aspx?pu=1> * Data downloaded October 8, 2018; Most recent data available.

NEW PROGRAM PROPOSAL FORM

Name of Institution: Coastal Carolina University

Name of Program: Bachelor of Science in Applied Statistics

Program Designation:

- | | |
|---|--|
| <input type="checkbox"/> Associate's Degree | <input type="checkbox"/> Master's Degree |
| <input checked="" type="checkbox"/> Bachelor's Degree: 4 Year | <input type="checkbox"/> Specialist |
| <input type="checkbox"/> Bachelor's Degree: 5 Year | <input type="checkbox"/> Doctoral Degree: Research/Scholarship (e.g., Ph.D. and DMA) |
| <input type="checkbox"/> Doctoral Degree: Professional Practice (e.g., Ed.D., D.N.P., J.D., Pharm.D., and M.D.) | |

Consider the program for supplemental Palmetto Fellows and LIFE Scholarship awards?

- Yes
 No

Proposed Date of Implementation: Fall 2019

CIP Code: 27.0501

Delivery Site(s):

Coastal Carolina University (main campus)

Delivery Mode:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Traditional/face-to-face
*select if less than 25% online | <input type="checkbox"/> Distance Education |
| | <input type="checkbox"/> 100% online |
| | <input type="checkbox"/> Blended/hybrid (50% or more online) |
| | <input type="checkbox"/> Blended/hybrid (25-49% online) |
| | <input type="checkbox"/> Other distance education (explain if selected) |

Program Contact Information:

Dr. Keshav Jagannathan
Professor of Statistics
843-349-6466
kjaganna@coastal.edu
Department of Mathematics and Statistics

Institutional Approvals and Dates of Approval (include department through Provost/Chief Academic Officer, President, and Board of Trustees approval):

Department of Mathematics and Statistics (October 12, 2018)
Curriculum Committee, College of Science (October 26, 2018)
Board of Trustees (August 3, 2018)
Academic Affairs Committee (November 13, 2018)
Faculty Senate (December 6, 2018)
Provost (December 18, 2018)
President (December 18, 2018)

Background Information

The Bachelor of Science (B.S.) in Applied Statistics at Coastal Carolina University seeks to provide students with a solid foundation in all aspects of statistical analysis; including programming, data analysis, and oral and written communication. A more traditional program in statistics consists of a balance between theory and application. Along with the more traditional attributes, the proposed B.S. will blend together statistical methods along with programming and communication skills that are necessary in today's job market. The degree program requires all students to take core courses, coursework that delivers a strong foundation in Mathematics and Statistics, and major coursework that exposes students to advanced statistical methods and programming.

The B.S. in Applied Statistics is designed to attract students who wish to use logic, reasoning, and analytic skills in conjunction with statistical knowledge to seek employment as statisticians, data analysts and data scientists. It is anticipated that the majority of new majors will initially come from multiple disciplines in science and business including but not limited to mathematics, marine science, biology, psychology, and economics. Furthermore, many potential new majors will be drawn from students currently earning a minor in Statistics.

The proposed B.S. in Applied Statistics aligns well with Coastal Carolina University's Mission and Strategic Plan due to its interdisciplinary nature and applications. More specifically, the University's mission statement indicates that the University seeks "to develop students who are both knowledgeable in their chosen fields and prepared to be productive, responsible, healthy citizens with a global perspective". Moreover, the current Strategic Plan promotes "a range of diverse learning opportunities, innovative curricula and programs that enhance engagement, assure high-impact credit and noncredit programs, and enable student success." The B.S. in Applied Statistics gives an individual the tools to become a leader in an information and data centered society.

Assessment of Need

According to the American Statistical Association¹, Statistician is projected as a top 10, fastest-growing job. In fact, the Bureau of Labor Statistics projects that employment of statisticians will rise 34% between 2014 and 2024, while overall growth is expected to be around 7%. AMSTAT NEWS¹ points out that the number of undergraduate degrees in Statistics or Biostatistics has grown 19% between 2015 and 2016. In a 2016 article², LinkedIn rated statistical analysis and data mining #2 on its Top Skills of 2016. Labor market data for South Carolina indicates 100+ job openings in positions that would employ statisticians.

To ascertain the demand for the major among existing students, a Needs Assessment Survey was conducted by the Office of Institutional Research, Assessment and Accreditation in Fall 2017. The survey was sent to a sample of 3,229 undergraduates enrolled Fall 2017. The overall response rate was 11.1% (360 student responses). Of the 360 students, 140 (38.89%) indicated that they would be interested in the Applied Statistics major, if offered at Coastal Carolina University. We therefore believe that the major would be well received by both our existing undergraduates and by students who are considering enrollment at Coastal Carolina University.

While we do not have direct feedback from prospective employers regarding the program, we have heard anecdotally from our graduates that their statistics coursework has been extremely helpful both in their academic endeavors and their job searches. These graduates are individuals in academia and in industry. We believe that offering a Bachelor of Science degree with an eye to the current job market would only improve their chances of obtaining gainful employment.

¹ AMSTAT NEWS, Bachelor's, Master's Statistics and Biostatistics Degree Growth Strong Through 2016, <http://magazine.amstat.org/blog/2017/10/01/degrees16/>

² LinkedIn, The Top Skills of 2016 on LinkedIn Global, <https://blog.linkedin.com/2016/10/20/top-skills-2016-week-of-learning-linkedin>

Transfer and Articulation

Not applicable for this program.

Employment Opportunities

Occupation	State		National		Data Type and Source
	Expected Number of Jobs ³	Employment Projection ⁴	Expected Number of Jobs ⁵	Employment Projection ⁶	
Statistician	565	+37.8%	49,800	+ 33.8%	Bureau of Labor Statistics, SC Works
Economist	126	+6.78%	22,600	+6.3%	Bureau of Labor Statistics, SC Works
Management Analyst	10,358	+17.29%	921,600	+14.3%	Bureau of Labor Statistics, SC Works
Software developers	4,964	+33.73%	10,866,000	+30.7%	Bureau of Labor Statistics, SC Works
Post-secondary teachers	117	+10.38%	66,600	+9.2%	Bureau of Labor Statistics, SC Works

Supporting Evidence of Anticipated Employment Opportunities

AMSTAT NEWS⁷ points out that the number of undergraduate degrees in Statistics or Biostatistics has grown 19% between 2015 and 2016. In a 2016 article⁸, LinkedIn rated statistical analysis and data mining #2 on its Top Skills of 2016. Labor market data for South Carolina indicates 100+ job openings in positions that would employ statisticians. Additionally, the median income for statisticians in the state of South Carolina is \$63,430 as compared to the overall median income in the state of South Carolina of \$46,898⁹.

³ In the year 2026 according to SC Works

⁴ Employment projections are based on SC Works projections for 2016 - 2026

⁵ In the year 2026 according to the Bureau of Labor Statistics

⁶ Employment projections are based on Bureau of Labor Statistics projections for 2016 - 2026

⁷ AMSTAT NEWS, Bachelor's, Master's Statistics and Biostatistics Degree Growth Strong Through 2016, <http://magazine.amstat.org/blog/2017/10/01/degrees16/>

⁸ LinkedIn, The Top Skills of 2016 on LinkedIn Global, <https://blog.linkedin.com/2016/10/20/top-skills-2016-week-of-learning-linkedin>

⁹ From <https://www.census.gov/quickfacts/sc>

Description of the Program

Projected Enrollment			
Year	Fall Headcount	Spring Headcount	Summer Headcount
2019-2020	10	14	0
2020-2021	20	23	0
2021-2022	26	28	0
2022-2023	30	32	0
2023-2024	28	28	0

Projected headcount is based on 10 new students each fall and 5 new students each spring. Years one through five total headcounts based on 90% returning fall to spring and 70% returning spring to fall.

Attrition is calculated into the numbers listed above.

Besides the general institutional admission requirements, are there any separate or additional admission requirements for the proposed program?

Yes

No

Curriculum

New Courses

STAT 414 Time Series Analysis (4 credits) (Prereq: A grade of “C” or better in STAT 412) This course is an introduction to models and graphical analyses for data which are generated sequentially. Topics include basic models (white noise, AR, random walks), time series regression, and forecasting. Software will be used extensively.

STAT 415 Introduction to Bayesian Statistics (3 credits) (Prereq: A grade of “C” or better in STAT 412) This course presents an in-depth introduction to the Bayesian paradigm. A study of Bayes’ Rule introduces students to likelihood functions, posterior, and prior distributions. Bayesian inference including proportions, means, and regression is explored in comparison to the frequentist approach. Software will be used extensively.

STAT 323 Survey Design (3 credits) (Prereq: A grade of “C” or better in STAT 201) This course highlights important areas of survey design and analysis. Design of the survey instrument and its distribution are covered. The impacts of nonresponse and other types of bias are discussed. Tools are given for summarizing and conducting inference on some of the most common designs including stratified and cluster sampling. Software will be used extensively.

Curriculum by Year					
Course Name	Credit Hours	Course Name	Credit Hours	Course Name	Credit Hours
Year 1					
Fall		Spring		Summer	
STAT 201	3	CSCI 135	3		
STAT 201L	1	MATH 161	4		
UNIV 110	3	STAT 316	3		
MATH 160	4	CORE	3		
CORE	3	CORE	3		
Total Semester Hours	14	Total Semester Hours	16	Total Semester Hours	
Year 2					
Fall		Spring		Summer	
CSCI 225	3	STAT 320	3		
MATH 260	4	STAT 321	3		
MATH 344	3	CORE	3		
STAT 316	3	CORE	3		
CORE	3	HIST 201 or POLI 201	3		
Total Semester Hours	16	Total Semester Hours	15	Total Semester Hours	
Year 3					
Fall		Spring		Summer	
STAT 412	3	STAT 413	3		
STAT 3XX	3	STAT 4XX	3		
CORE	3	STAT 3XX	3		
CORE	3	CORE	3		
SCI 1**	3	SCI 1XX	3		
Total Semester Hours	15	Total Semester Hours	15	Total Semester Hours	
Year 4					
Fall		Spring		Summer	
STAT 4XX	3	STAT 3XX	3		
MATH 490	3	STAT 3XX	3		
CORE	3	CORE	3		
CORE	3	CORE	3		
ELECTIVE	3	ELECTIVE	3		
Total Semester Hours	15	Total Semester Hours	15	Total Semester Hours	

Similar Programs in South Carolina offered by Public and Independent Institutions

Program Name and Designation	Total Credit Hours	Institution	Similarities	Differences
Dept. of Statistics Statistics Major (B.S.)	27-45 hours in Major Requirements	University of South Carolina (USC)	This is the only comparable program in the state (i.e. only other BS in Statistics). Both programs require a combination of theoretical and applied classes with some basic programming classes. Both programs prepare students for industry and graduate school. Both programs serve many disciplines within the university.	USC has an actuarial science concentration for the major.
Dept. of Statistics Statistics, actuarial science, or data science minors	18 hours	University of South Carolina	Both programs require foundational applied statistics courses.	This is a minor and therefore not as comprehensive as a major. The minor does not specify which applied statistics courses to take. The actuarial and data science minors are more focused in those areas than our offerings.
Dept. of Statistics Integrated BS/MS and MAS in applied statistics	30 hours	University of South Carolina	Both programs offer a BS in statistics (see above). Both programs require a combination of theoretical and applied classes.	USC has a 5-year plan for outstanding students to pursue both a BS and MS degree in statistics.
Dept. of Statistics MAS in applied statistics	30 hours	University of South Carolina	Both offer applied statistics courses.	The MAS program at USC is all distance learning while this program will have little to no distance learning. The USC program is aimed towards those currently working in industry.
Dept. of Mathematics Mathematical Sciences M.S. with statistics concentration	30 hours	College of Charleston (COC)	Both programs offer applied statistics courses.	This is a graduate level program. Since this is only a statistics concentration, courses have a more mathematical focus.
Dept. of Mathematics Mathematics B.S. with Statistics track	39+ hours	College of Charleston	Both programs require a similar mathematical foundation and core statistics courses.	COC allows for more upper level courses to be mathematics rather than statistics. They do not offer a SAS certification and require fewer programming courses.
Dept. of Mathematical Sciences	122 total semester hours	Clemson	Both programs offer students a capstone experience with a small overlap in applied statistics courses.	This program requires many more mathematics courses as it is a concentration within a mathematics

Program Name and Designation	Total Credit Hours	Institution	Similarities	Differences
B.S. in Mathematical Sciences with Statistics Emphasis				degree. Students are exposed to very few applied statistical courses.
Dept. of Mathematical Sciences M.S. in Mathematical Sciences with Statistics Emphasis	36 hours	Clemson	Both programs offer applied statistics courses.	This is a graduate program and therefore not directly comparable. Six graduate classes are taken in mathematical science. An additional six are taken in a concentration, one being statistics.
Dept. of Mathematical Sciences Minor in Mathematical Sciences	15 hours	Clemson	Both programs allow students to take applied statistics courses at the undergraduate level	Students are not required to take any statistics courses. They must take 12 credits of MATH or STAT courses. That is, there is no guarantee of a focus in statistics.

Faculty

Rank and Full- or Part-time	Courses Taught for the Program	Academic Degrees and Coursework Relevant to Courses Taught, Including Institution and Major	Other Qualifications and Relevant Professional Experience (e.g., licensures, certifications, years in industry, etc.)
Professor, Full-time	Foundation, Major, and Elective STAT Courses. All Terms	Ph.D. Mathematics with a concentration in Statistics. M.A. Statistics	Core Faculty
Associate Professor, Full time	Foundation, Major and Elective statistics courses.	Ph.D. Statistics M.S. Statistics	Core Faculty
Associate Professor, Full time	Foundation, Major and Elective statistics courses.	Ph.D. Biostatistics M.S. Mathematics	Core Faculty
Assistant Professor*, Full time	Foundation, Major and Elective statistics courses.	Ph.D. Statistics or equivalent qualification	Core Faculty. To be hired during the 2019-2020 academic year. Begins Fall 2020.
Teaching Lecturer*, Full time	Foundation statistics courses.	M.S. Statistics or equivalent qualification	Core Faculty. To be hired during 2020-21 academic year. Begins Fall 2021.

Total FTE needed to support the proposed program:

Faculty: 1.00

Staff: 0.25

Administration: 0.17

YEAR	NEW		EXISTING		TOTAL	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2019-2020	0	0.00	1	0.17	1	0.17
2020-2021	0	0.00	1	0.17	1	0.17
2021-2022	0	0.00	1	0.17	1	0.17
2022-2023	0	0.00	1	0.17	1	0.17
2023-2024	0	0.00	1	0.17	1	0.17
Faculty						
2019-2020	0	0.00	3	1.00	3	1.00
2020-2021	0	0.00	3	1.00	3	1.00
2021-2022	0	0.00	3	1.00	3	1.00
2022-2023	0	0.00	3	1.00	3	1.00
2023-2024	0	0.00	3	1.00	3	1.00
Staff						
2019-2020	0	0.00	1	0.25	1	0.25
2020-2021	0	0.00	1	0.25	1	0.25
2021-2022	0	0.00	1	0.25	1	0.25
2022-2023	0	0.00	1	0.25	1	0.25
2023-2024	0	0.00	1	0.25	1	0.25

Faculty, Staff, and Administrative Personnel

The Department of Mathematics and Statistics at Coastal Carolina University has sufficient faculty to initiate the program. The program will rely on the current department chair for leadership and administrative staff. In the future, additional faculty may be necessary and will be determined by University allocation resources at that time.

Resources

Library and Learning Resources

Kimbel Library and Bryan Information Commons has holdings of over 450,000 items in all formats. The library has access to over 120,000 periodicals: magazines, newspapers, scholarly journals, and proceedings in print and online formats and provides access to its holdings and to over 140 online citation, abstracting, full-text and reference resources via the World Wide Web at (<http://www.coastal.edu/library>). Library instruction sessions are available to all academic departments covering general library usage as well as project or course-specific sessions for upper-level research-oriented courses. Coastal Carolina University fully supports and participates in Partnership Among South Carolina Academic Libraries (PASCAL), the state academic library consortium. Students have access to books from other South Carolina academic libraries through PASCAL Delivers, a rapid book delivery service provided by PASCAL.

Course-integrated library instruction sessions are available to all academic departments; the library also offers one-credit information literacy courses. Librarians offer appointments for in-depth research help. Kimbel Library operates on a 24/7 schedule during the fall and spring semesters; during that time, library staff members are available to assist students via phone, chat, or in-person at the help desk.

Teaching faculty provide input regarding selection of library resources, including both print and electronic resources. The Mathematics and Statistics department has a designated library liaison who takes order requests and communicates with faculty when new resources are available.

Library holdings are as follows:

Monographs

Broad subject areas for statistics and related fields were identified for this program. Kimbel Library currently owns 907 relevant titles in print format, and provides access to 4,180 relevant eBooks.

Audiovisual

The library provides access to streaming video in support of the statistics curriculum, and currently has 11 relevant titles available on DVD.

Serials and Subscriptions

Kimbel Library currently provides access to over 231 peer-reviewed journals classified under mathematical statistics. Online access is provided via aggregator databases, publisher packages, open access titles, and direct online subscriptions.

Current access points for statistics journals include, but are not limited to:

- Academic Search Complete
- arXiv.org
- JSTOR
- Math SciNet
- ScienceDirect
- SpringerLink
- Web of Science

The library funds listed in the budget table will be used to purchase course textbooks which will be placed on reserve in Kimbel Library in an attempt to lower the cost of textbooks to our students.

Student Support Services

Advising

Advisers currently working within the College of Science and Department of Mathematics and Statistics are sufficient to provide support without additional cost. All university-wide academic support services (the Writing Center, Math Lab, Tutoring, Office of Disability Services, etc.) are available to these new majors, as they are to all students. Statistics professors have past and presently held hours during the Math Outreach program, thus incurring no additional costs for this resource.

Counseling Services

Counseling Services are offered to Coastal Carolina University students to assist students in defining and accomplishing their personal and academic goals. Services include:

- Treating mental health concerns
- Preventing psychological difficulties
- Educating students to live emotionally and behaviorally healthy lives, and
- Contributing to a healthy campus environment.

Services also include individual, couples and group counseling; psychiatric services; crisis intervention; assessment; nutritional counseling; drug and alcohol education; referrals; and consultation. The ultimate aim of Counseling Services is to produce graduates who are healthy citizens. Counseling Services adheres to the standard professional procedure regarding confidentiality of information and records are not part of any other Coastal Carolina University records.

Accessibility and Disability Services

Accessibility and Disability Services offers students with physical, psychological or learning disabilities accommodations and assistance. With appropriate documentation, counselors determine accommodations needed to assist students in taking full advantage of their Coastal Carolina University educational opportunities. Ongoing disability coaching is offered to assist students with disabilities to help ensure their success at Coastal Carolina University. To access services and accommodations, students should register with the office, obtain documentation of the disability and make an appointment with a staff member.

Physical Resources/Facilities

Current facilities are adequate for the initial cohort of students. However, with increasing enrollment and course offerings, the program may need to utilize a dedicated computer lab classroom.

The Department of Mathematics and Statistics is currently housed in the Smith Science building on Coastal Carolina University's campus. There are two classrooms (with capacities of 32 and 24) on the second floor of Smith that can be used for coursework. There is also a 24 person computer lab (Smith 208) that can be used for courses that require the use of computers in the classroom. In addition, since the proposed program only adds three new courses, we feel that the existing classrooms on campus can more than adequately handle the increased demand for space.

Equipment

Current equipment is adequate for the initial cohort of students. However, with increasing course offerings, new software may be required. The program also assumes that computers and associated software (that already exist) will be replaced as necessary. The department would like to have some resources set aside to replace/upgrade the computing equipment ahead of the University's timetable for computer upgrades. In addition, the department would also like to have that money on hand should we need new software for courses that are not yet offered at Coastal Carolina University.

Impact on Existing Programs

Will the proposed program impact existing degree programs or services at the institution (e.g., course offerings or enrollment)?

Yes

No

The program will require students to take courses currently offered by the Mathematics and Computer Science departments. However, much of the statistics coursework is already offered on a rotation due to the statistics minor. A major in statistics also serves as a natural double-major to students in the sciences who are interested in research careers or graduate school. Students in this major may have interesting opportunities for internships and work on campus. For example, efforts are in place through the baseball team to start a Baseball Statistics and Analysis Club. Previously, two student interns majoring in statistics served in this capacity.

Stackable Credentials:

Students in the major will have the option to obtain a Base SAS certification which is recommended by the department but is not required at this time.

Financial Support

Sources of Financing for the Program by Year												
Category	1 st		2 nd		3 rd		4 th		5 th		Grand Total	
	New	Total	New	Total								
Tuition Funding	\$233,676	\$233,676	\$391,813	\$391,813	\$512,478	\$512,478	\$594,993	\$594,993	\$558,823	\$558,823	\$2,291,783	\$2,291,783
Program-Specific Fees											\$0	\$0
Special State Appropriation											\$0	\$0
Reallocation of Existing Funds											\$0	\$0
Federal, Grant or Other Funding											\$0	\$0
Total	\$233,676	\$233,676	\$391,813	\$391,813	\$512,478	\$512,478	\$594,993	\$594,993	\$558,823	\$558,823	\$2,291,783	\$2,291,783
Sources of Financing for the Program by Year												
Category	1 st		2 nd		3 rd		4 th		5 th		Grand Total	
	New	Total	New	Total								
Program Administration and Faculty/Staff Salaries	\$135,094	\$135,094	\$137,796	\$137,796	\$140,552	\$140,552	\$143,363	\$143,363	\$146,231	\$146,231	\$703,036	\$703,036
Facilities, Equipment, Supplies, and Materials	\$20,000	\$20,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$40,000	\$40,000
Library Resources	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$500	\$2,500	\$2,500
Total	\$155,594	\$155,594	\$143,296	\$143,296	\$146,052	\$146,052	\$148,863	\$148,863	\$151,731	\$151,731	\$745,536	\$745,536
Net Total (Sources of Financing Minus Estimated Costs)	\$78,082	\$78,082	\$248,517	\$248,517	\$366,426	\$366,426	\$446,130	\$446,130	\$407,092	\$407,092	\$1,546,247	\$1,546,247

Note: New costs - costs incurred solely as a result of implementing this program. Total costs - new costs; program's share of costs of existing resources used to support the program; and any other costs redirected to the program.

Budget Justification

Program cost-effectiveness and return-on-investment are evaluated institutionally using an induced revenue/expense model. As shown in the Financial Support table, tuition revenues are based on a 15-credit course load for each student projected to enroll in the program. These revenues represent course revenues derived from both program and general education curriculum requirements. The expenses shown in the Financial Support table represent direct expenses necessary for delivering program courses and administration. Due to an undergraduate program's inducement of additional general education expenses, as well as overall institutional operational expenses, the university uses a 50% gross academic margin assessment to ensure that new programs will provide sufficient revenues to support their expense impact on institutional operations.

To derive gross academic margin, we calculate total induced revenue (\$2,291,783 for the period) minus total direct expenses (\$745,536 for the period) divided by total induced revenue (\$2,291,783 for the period). $[(Revenue-Expenses)/Revenue]$

For a program to be considered cost-effective, the university looks for undergraduate programs to produce a gross academic margin of 50% or better. The 50% threshold is due to undergraduate participation in the general education curriculum, as well as greater undergraduate reliance on university operational resources. This program's gross academic margin is 67.47% for the period, which indicates that this program has a high likelihood of producing sustainable revenues.

Evaluation and Assessment

The B.S. in Applied Statistics will prepare students to: (1) analyze data and fit appropriate models; (2) communicate methods and results effectively to technical and non-technical audiences; and (3) obtain a range of positions in various industries or pursue graduate education in statistics, mathematics, or other related fields.

Each program objective will be assessed using both direct methods (including but not limited to test questions and homework assignments) and indirect methods (including but not limited to survey questions and a Senior Exit Exam) as appropriate.

The department intends to use a triangulation strategy to collect data that will be used to assess each Student Learning Outcome (SLO). This strategy requires the collection of data from multiple sources using both direct and indirect methods. Direct assessment methods will evaluate the skills of students by testing factual knowledge or skills. Indirect methods will evaluate the interpretation of learning achieved. The triangulation will be achieved by targeting three main data sources (each with numerous individual data points): data from individual courses, knowledge-based questions on a Senior Exit Exam, and survey-based questions on a Senior Exit Exam.

While each SLO can be linked to a program objective, the department will be assessing each individually as they relate to current students. Each assessment cycle will involve the assessment of two SLOs. Data will be gathered, analyzed, and the assessment results will be used to drive changes to methods or SLOs for subsequent assessments. This assessment schedule affords the opportunity to make changes to the program after analysis and dissemination of assessment results and before data is collected for the next assessment cycle.

Program Objectives	Student Learning Outcomes	Methods of Assessment
(1) Formulate a problem, analyze corresponding data and reach meaningful conclusions	(1) Use statistical reasoning to formulate a problem in statistical terms and perform exploratory analysis of data.	Course data, Senior Exit Exam
	(2) Critically evaluate the strengths and weaknesses of study designs and select a study design that is appropriate for addressing a specific research question.	Course data in STAT 316 and STAT 320, Senior Exit Exam
	(3) Analyze data by appropriately fitting, assessing, and interpreting a variety of statistical models.	Course data, Senior Exit Exam
(2) Communicate the results in context in a clear and understandable manner to both technical and non-technical audiences.	(4) Demonstrate the ability to communicate the results of statistical analysis to both technical and non-technical audiences.	Presentation rubric in capstone course, Written assignment rubric in capstone course

In the Fall 2018 semester, Coastal Carolina University launched a new, University-wide alumni survey instrument to compliment the efforts of our Alumni Relations office. The new survey incorporated and replaced the existing university-sponsored alumni survey (run 2009 through 2017), the Career Services post-graduation outcome survey (run 2012 through 2017), and all program-specific alumni survey efforts. It collects data on employment, additional education, academic and student life involvement, and overall satisfaction with the CCU experience. The survey is administered to alumni from both undergraduate and graduate programs, on a set schedule nine months after graduation. Collected data is summarized and shared with campus constituencies including Alumni Relations, Career Services, Student Life and the academic colleges and departments.

Accreditation and Licensure/Certification

Will the institution seek program-specific accreditation (e.g., CAEP, ABET, NASM, etc.)?

Yes

No

Will the proposed program lead to licensure or certification?

Yes

No

If the program is an Educator Preparation Program, does the proposed certification area require national recognition from a Specialized Professional Association (SPA)?

Yes

No