Common Prerequisite Proposal

I. Contact Information

Requesting Chief Program Chair: Dr. Steve Johnson	Email: johnsons@easternflorida.edu Phone: (321) 433 - 5247
Requesting Chief Academic Officer or University Common Prerequisite Liaison (person submitting this proposal to the Board of Governors or Division of Florida Colleges:: Dr. Linda Miedema	X Linda Miedema Linda Miedema VI Academic & Student Services Email: miedemal@easternflorida.edu Phone: 321-433-7080
Requesting institution: Eastern Florida State College	

II. Program Information

Title of Degree Program: Bachelors of Applied Science Computer Information Systems Technology	CIP Code: 11.0401	Track (if appropriate):
Does this proposal align with a current track? **YES**	Yes: **X**	No:
Is this program approved for limited access? **NO**		
Approved total program hours to the baccalaureate degree: **120**		
Other Institutions offering the same program (CIP and Tracks or different CIP/Track if the same major): **NONE**		

III. Proposed Changes – Add rows as necessary

A. All Current Approved Common Prerequisites (add rows if necessary.

Current Approved Common Prerequisites		
Course Prefix	**Course Name**	**Cr. Hrs.**
COPX334	Introduction to C++ Programming	3
MACX331	Calculus 1	4
PHYX048/X048L	Physics 1 & Physics 1 Lab	4
Current Approved Common Prerequisite Credit Hours		11

B. All Proposed Common Prerequisites and Commonality of Course Offerings (add rows if necessary)

Course Prefix	**Credit Hours**	**Number of FCS Currently Offering Course**	**Number of SUS Currently Offering Course**	**Justification for the addition or deletion of course**
COPX334	3	8	2	Current Approved Common Prerequisite
STA2023	3	28	5	Seeking ABET Accreditation (Required for Computing Accreditation Commission (CAC))
MACX331	4	N/A	N/A	Deletion - Not Required for Target Careers (e.g., Computer Programmer, Web Developer, Systems Analyst, Project Manager, Data Analyst, Network Administrator, Computer Support Specialist, Database Administrator)

8/7/2018

PHYX048/X048L	4	N/A	N/A	Deletion - Not Required for Target Careers (e.g., Computer Programmer, Web Developer, Systems Analyst, Project Manager, Data Analyst, Network Administrator, Computer Support Specialist, Database Administrator)

C. If your request includes course(s) that are offered currently at three or fewer FCS institutions, please provide a justification as to why these courses are critical for a student's success in the baccalaureate degree program:

Course(s) limited to 3 or less FCS institutions	Justification as to why these courses are critical for a student's success in the baccalaureate program.

D. If your request includes courses that are offered only at your institution, explain what options are available to students at other institutions for completing the required courses:

E. Are you requesting to delete any of the currently approved common prerequisites? Yes If so, please list below:

MACX331, PHYX048/048L

Review of Completion within 60 semester hours.

A. Course Prerequisites, if known, for Common Prerequisite

College Level Prerequisites for Common Prerequisite Courses		
Course Prefix for	**College Level Prerequisites**	**Cr. Hrs.**
STA2023	MAC1105 College Algebra	3
	MAT1033 Intermediate Algebra	3
COPX334	COP1000 Principles of Programming	3
	Number of College Level Prerequisites for Common Prerequisite Courses	9

B. Review of Coursework

Review of Common Prerequisite Completion within 60 hours	
60	Credit Hours for AA Degree
- 6	Minus Number of Proposed Common Prerequisite Credit Hours
- 9	Minus Number of College Level Course Prerequisites for Common Prerequisite Courses (if known)
+	Plus Number of Common Prerequisites in General Education Core
45	Equals Number Credit Hours to complete remainder of General Education

If the number of credit hours to complete remainder of general education is less than 24 credit hours, explain how students will meet the requirements of the common prerequisites:

Common Prerequisite Proposal

V. Supporting Documentation

Include the following with this proposal:

- The program page from the Common Prerequisite Manual, if applicable.
- The program requirements for the baccalaureate degree.

Date of Submission to the Board of Governors or the Division of Florida Colleges: 1/9/2020

Program:	Information Sciences and Studies	**CIP:**	11.0401
	Computer Information Systems EN EIF	**Track:**	1/2
Offered At:	EFSC	**Program Length:**	120 Cr. Hrs.

NOTE: These are the common prerequisites for Computer Information Systems EN EIF. The Computer Science EN BCS program is found in 11.0101 Track 1. The Computer Engineering EN ECP program is under 14.0901 Track 1.

REVISED 6/30/14

EFSC degree program is a B.A.S. degree.

REVISED 4/27/2016

USF removed 5/2/2019

Technical 9/27/2019; 10/2/2019

LOWER LEVEL COURSES

		Cr. Hrs.
	COPXXXX *(1)*	3
Or–	COPX334	3
&–	MACX311	4
&	PHYX048/X048L	4

FOR ALL MAJORS: Students are strongly encouraged to select required lower division electives that will enhance their general education coursework and that will support their intended baccalaureate degree program. Students should consult with an academic advisor in their major degree area.

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(1) Introductory Programming in C, C++, JAVA, or equivalent language.

Universities may have individual specific grade requirements for each prerequisite course. Consult the program for details.

Admission to Bachelor of Applied Science (B.A.S.) degree programs usually requires an Associate in Science (A.S.) or Associate in Applied Science (A.A.S.) degree in a related area. If a student has earned an Associate in Arts (A.A.) degree, or an A.S. degree, an A.A.S. degree, or its equivalent in an unrelated area, the student may be admitted on a case-by-case basis with approval of the appropriate academic administrator. Some majors may have licensure or other types of requirements prior to admittance. Due to the variance in specialized B.A.S. degree programs and concentrations, students are strongly encouraged to consult with an academic advisor at the B.A.S degree-granting institution.

Computer Information Systems Technology

Bachelor of Applied Science - Code CTBS

The degree is intended to provide students with the skills and knowledge necessary to enter the workforce in a mid-level management position. Graduates will demonstrate mastery of skills needed in the rapidly growing program field of Information Systems and will lead to employment in public, private, and nonprofit sectors. Concentrations in cybersecurity, data science, networking systems, program development/software development, and project management will prepare graduates for entry level as well as administrative/managerial positions in business, industry, technical, healthcare services, and other related industries.

Students who have completed or who are in the last semester of coursework needed to complete an Associate in Science or an Associate in Arts degree may apply. The program prerequisites will include an earned Associate in Science degree; students with an earned Associate in Arts degree will be reviewed on a case by case basis. All BAS degrees require completion of Florida's standard baccalaureate degree requirements (36 hours of General Education and demonstration of foreign language competence). Contact the BAS Program Specialist at BAS@easternflorida.edu for more information.

For AS degree students: Most AS degrees include 15 credits in General Education. Therefore, once admitted to the BAS program, AS students who have not completed required General Education requirements will need to continue to take General Education credit hours. These credits will be considered part of the remaining General Education, upper division portion of the 60 credits required for the BAS degree. Students must work with the BAS Program Specialist to review the General Education requirements.

For AA degree students: Once admitted to the BAS program, AA students will need to take 21 credit hours of appropriate technical concentration courses. Students must work with the BAS Program Specialist for proper technical course selection. Technical concentration courses may be considered part of the technical concentration, upper division portion of the 60 credits required for the BAS degree.

Before completing the BAS track, students will need to earn a grade of "C" or higher in the following courses:

- MAC 1311 - Calculus 1
- PHY 2048 - General Physics 1
- COP 2334 - C++ Programming or other programming course

Students may have taken these courses, but if not, they will be required and an advisor can help with course planning.

Select one specialization:

- Computer Information Systems Technology - Cybersecurity (Code: CTBSCSCT)
- Computer Information Systems Technology - Data Science (Code: CTBSDSBS)
- Computer Information Systems Technology - Networking Systems (Code: CTBSNSCT)
- Computer Information Systems Technology - Program Development/Software Development (Code: CTBSPDCT)
- Computer Information Systems Technology - Project Management (Code: CTBSPMCT)

Note:

ASSOCIATE DEGREE		**Credits Needed: 60**
GENERAL EDUCATION OR TECHNICAL CONCENTRATION		**Credits Needed: 21**
General Education (for A.S. degree students) or Technical Concentration (for A.A. degree students)		
COMPUTER INFORMATION SYSTEMS TECHNOLOGY - MAJOR COURSES		**Credits Needed: 12**
GEB 3213	Foundations of Managerial Communications	3
ISM 3011	Introduction to Information Technology Management	3
ISM 4300	Information Systems Operations Management	3
MAN 4504	Operational Decision Making	3
SELECT ONE SPECIALIZATION FROM BELOW:		**Credits Needed: 27**
Choose 27 credits from *one* of the following specializations:		

CYBERSECURITY SPECIALIZATION		Credits Needed: 27
Specialization Code - CTBSCSCT		
CEN 4341	Platform Technologies	3
CEN 4949	Internship	3
CISC 3391	Computer Forensics	3
CISC 3392	Windows Forensics	3
CNT 3403	Network Defense Security	3
CNT 4704	Network Planning and Design	3
COP 3330	Object Oriented Programming	3
COP 3703	Database Design and Architecture	3
COP 3813	Internet Programming	3
COP 4849	Web Applications Programming	3
ISM 3113	Information Systems Analysis and Design	3
ISM 3321	Cybersecurity Fundamentals	3
ISM 3324	Applications in Information Security	3
ISM 4041	Emerging Information Technologies	3

DATA SCIENCE SPECIALIZATION		Credits Needed: 27
Specialization Code - CTBSDSBS		
CAP 3783	Database Systems with Big Data	3
CAP 3940	Data Science Internship	3
CAP 4770	Data Mining	3
CAP 4773	Capstone Project - Data Management Science	3
COP 3330	Object Oriented Programming	3
COP 3530	Data Structures and Algorithm Analysis	3
COP 3703	Database Design and Architecture	3
COT 4500	Numerical Analysis	3
ISM 3113	Information Systems Analysis and Design	3
ISM 3324	Applications in Information Security	3
STA 3024	Statistics 2 for Data Scientists	3

NETWORKING SYSTEMS SPECIALIZATION		Credits Needed: 27
Specialization Code - CTBSNSCT		
CEN 4341	Platform Technologies	3
CEN 4949	Internship	3
CNT 3403	Network Defense Security	3
CNT 3406	Information Security Management	3
CNT 3702	Infrastructure and Facilities Planning	3
CNT 4704	Network Planning and Design	3
COP 3330	Object Oriented Programming	3
ISM 3113	Information Systems Analysis and Design	3
ISM 3320	Information Systems Control	3
ISM 3324	Applications in Information Security	3
ISM 4041	Emerging Information Technologies	3

ISM 4220	Network Management for Informational Professionals	3
PROGRAM DEVELOPMENT/SOFTWARE DEVELOPMENT SPECIALIZATION		**Credits Needed: 27**
Specialization Code - CTBSPDCT		
CEN 3024	Software Development 1	3
CEN 4025	Software Development 2	3
CEN 4802	Software Integration, Configuration, and Testing	3
CEN 4949	Internship	3
COP 3330	Object Oriented Programming	3
COP 3703	Database Design and Architecture	3
COP 3813	Internet Programming	3
COP 4655	Application Development for Mobile Devices	3
COP 4849	Web Applications Programming	3
ISM 3113	Information Systems Analysis and Design	3
ISM 3324	Applications in Information Security	3
ISM 4041	Emerging Information Technologies	3
PROJECT MANAGEMENT SPECIALIZATION		**Credits Needed: 27**
Specialization Code - CTBSPMCT		
CEN 4722	Human Computer Interaction	3
CEN 4949	Internship	3
CIS 3510	Advanced I.T. Project Management	3
CNT 3406	Information Security Management	3
COP 3330	Object Oriented Programming	3
COP 3703	Database Design and Architecture	3
ISM 3113	Information Systems Analysis and Design	3
ISM 3320	Information Systems Control	3
ISM 3324	Applications in Information Security	3
ISM 4041	Emerging Information Technologies	3
ISM 4314	Project and Change Management for Technology	3
MAN 4583	Project Management	3
		Total Credit Hours: 120

Note: Successfully complete the Florida foreign language requirement; see "Foreign Language Requirement" in the Associate in Arts section. Foreign language taken at the college level **does not** satisfy the General Education or Technical Concentration credits.

Note: Pursuant to Section 1007.25, F.S., beginning with students initially entering a Florida College System institution or state university in the 2018-2019 school year and thereafter, each student must demonstrate competency in civic literacy.

Additional Supporting Document
(subset of ABET Accreditation Criteria)

2019-2020 Criteria for Accrediting Computing Programs

PROGRAM CRITERIA FOR INFORMATION SYSTEMS AND SIMILARLY NAMED COMPUTING PROGRAMS

Lead Society: CSAB

These program criteria apply to computing programs using information systems or similar terms in their titles.

Definition

Information Systems Environment - An information systems environment is an organized domain of activity within which information systems are used to support and enable the goals of the activity. Examples of information systems environments include (but are not limited to) business, health care, government, not-for-profit organizations, and scientific disciplines.

3. Student Outcomes

In addition to outcomes 1 through 5, graduates of the program will also have an ability to:

6. Support the delivery, use, and management of information systems within an information systems environment. [IS]

5. Curriculum

The curriculum requirements specify topics, but do not prescribe specific courses.

These requirements are:

(a) Information systems: At least 30 semester credit hours (or equivalent) that include coverage of fundamentals and applied practice in application development; data and information management; information technology infrastructure; systems analysis, design and acquisition; project management; and the role of information systems in organizations.

(b) Information systems environment: At least 15 additional semester credit hours (or equivalent) of a cohesive set of topics that provide an understanding of an information systems environment.

(c) Quantitative analysis or methods that must include statistics.

6. Faculty

Some full-time faculty members, including those responsible for the information systems curriculum development, must hold a terminal degree with a program of study in information systems.

Common Prerequisite Proposal

I. Contact Information

Requesting Chief Program Chair: Dr. Lisa Zidek, Associate Dean, U.A. Whitaker College of Engineering	Email: lzidek@fgcu.edu Phone: (239) 590-7392
Requesting Chief Academic Officer or University Common Prerequisite Liaison (person submitting this proposal to the Board of Governors or Division of Florida Colleges:: Lucero Carvajal Dr. Cathy Duff	X First Name, Last Name Title: Email: lcarvajal@fgcu.edu cduff@fgcu.edu Phone: (239) 745-4368 or (239) 590-7043
Requesting institution:	Florida Gulf Coast University

II. Program Information

Title of Degree Program: Bioengineering (B.S.)	CIP Code: 14.0501	Track (if appropriate): 1
Does this proposal align with a current track?	Yes: X	No:
Is this program approved for limited access?	No	
Approved total program hours to the baccalaureate degree: 129		
Other Institutions offering the same program (CIP and Tracks or different CIP/Track if the same major): USF, FIU, FGCU, FAMU, FSU, UF		

III. Proposed Changes – Add rows as necessary

A. All Current Approved Common Prerequisites (add rows if necessary.

Current Approved Common Prerequisites		
Course Prefix	**Course Name**	**Cr. Hrs.**
MACX311	Calculus I	4
MACX312	Calculus II	4
MACX313	Calculus III	4
MAPX302	Differential Equations	3
CHMX045C	General Chem w/Lab I	4
CHMX046C	General Chem w/Lab II	4
PHYX048C	General Physics w/Lab I	4
PHYX049C	Gen'l Physics w/Lab II	4
BSCX010C	Gen'l Biology w/Lab I	4
CHMX210C	Organic Chemistry w/Lab I	4
Current Approved Common Prerequisite Credit Hours		39

B. All Proposed Common Prerequisites and Commonality of Course Offerings (add rows if necessary)

Common Prerequisite Proposal

Course Prefix	Credit Hours	Number of FCS Currently Offering Course	Number of SUS Currently Offering Course	Justification for the addition or deletion of course
STAX023 or STAX037	3	>10	>10	The content of this course will provide students with introductory knowledge of statistics principles that will better prepare them to be successful in required courses in the program

C. If your request includes course(s) that are offered currently at three or fewer FCS institutions, please provide a justification as to why these courses are critical for a student's success in the baccalaureate degree program: N/A

Course(s) limited to 3 or less FCS institutions	Justification as to why these courses are critical for a student's success in the baccalaureate program.

If your request includes courses that are offered only at your institution, explain what options are available to students at other institutions for completing the required courses: N/A

D. Please explain how any additions or deletions of common prerequisites affect programmatic accreditation issues:
The Accreditation Board for Engineering and Technology (ABET) specifically requires that the curriculum must prepare students to apply principles of statistics. As a lower division course, adding STAX023 or STAX037 to the common prerequisite courses will be beneficial to students.

IV. **Review of Completion within 60 semester hours.**

A. Course Prerequisites, if known, for Common Prerequisite

College Level Prerequisites for Common Prerequisite Courses		
Course Prefix for	**College Level Prerequisites**	**Cr. Hrs.**
MACX311	MACX147	4
MACX312	MACX311	Included in Common Prerequisites
MACX313	MACX312	Included in prior row
MAPX302	MACX312	Included in prior row
CHMX045C	MACX105 or MACX147 or MACX311	Included in prior rows
CHMX046C	CHMX045C	Included in Common Prerequisites
PHYX048C	MACX311	Included in Common Prerequisites
PHYX049C	PHYX048C and MACX312	Included in Common Prerequisites
BSCX010C	None	None
CHMX210C	CHMX046C	Included in Common Prerequisites
STAX023	MATX033 (or higher) or Placement Exam	Included in prior rows
Number of College Level Prerequisites for Common Prerequisite Courses		4

B. Review of Coursework

Review of Common Prerequisite Completion within 60 hours	
60	Credit Hours for AA Degree
- 42	Minus Number of Proposed Common Prerequisite Credit Hours
- **4**	Minus Number of College Level Course Prerequisites for Common Prerequisite Courses (if known)
+ 19	Plus Number of Common Prerequisites in General Education Core (STA 2023(3), MAC 2311(4), CHMX045C(4), CHMX046C(4), BSC 1010C(4))
33	Equals Number Credit Hours to complete remainder of General Education

If the number of credit hours to complete remainder of general education is less than 24 credit hours, explain how students will meet the requirements of the common prerequisites: N/A

V. Supporting Documentation

Include the following with this proposal:

- The program page from the Common Prerequisite Manual, if applicable.
- The program requirements for the baccalaureate degree.

Date of Submission to the Board of Governors or the Division of Florida Colleges: 9/6/19

Program:	Biomedical/Bioengineering	**CIP:**	14.0501
		Track:	1
Offered At:	USF*	**Program Length:**	120 Cr. Hrs.
	FIU		128
	FGCU		129
	FAMU, FSU		131
	UF*		132

Revised 9/1/2011
Technical course addition 10/23/2013
REVISED 10/28/15
Technical change May 2017.
Technical revision 7/6/2018
Revised 10/24/2018
Technical 12/20/2018
Technical change 6/13/2019
Technical 6/19/2019

LOWER LEVEL COURSES

		Cr. Hrs.	
	MACX311	4	Calculus I with Analytical Geometry
&–	MACX312	4	Calculus II with Analytical Geometry
&–	MACX313	4	Calculus III with Analytical Geometry
or–	MACX281	4	
&–	MACX282	4	
&–	MACX283	4	
&–	Select from the following:		
or–	MAPX302	3	Differential Equations
or–	MAPX305	3	Different Equations for Engineers
or–	ECHX301	3	Intro to Process Analysis and Design
&–	Natural Sciences:		
&	CHMX045C	4	Chemistry I & lab
or–	Take both courses:		
&–	CHMX045/X045L	4	
or–	Take both courses:		
&–	CHMX095/X095L	4	
or–	CHMX440C	4	
&	PHYX048C	5	
or–	PHYX048	4	
&–	Select one:		
or–	PHYX048L	1	
or–	PHYX064L	1	
&	PHYX049C	5	Physics Laboratory II
or–	Take all of the following:		
&–	PHYX049	4	
&–	Select from the following:		
or–	PHYX049L	1	
or–	PHYX064L	1	
&	Take both courses:		
&–	CHMX046/X046L	4	
or–	Take both courses:		
&–	CHMX096/X096L	4	
or–	CHMX046C	4	
&	BSCX010C	1	General Biology I and Laboratory
or–	Take the following:		
&–	BSCX010	3	
&–	Select from the following:		
or–	BSCX010L	1	
or–	BSCX044L	1	
&	CHMX210C	4	Organic Chemistry I with lab
or–	Take both::		
&–	CHMX0210	3	
&–	CHMX210L		
&	STAX023 (2)	3	
or–	STAX037		

(1) UF requires CHMX217 or both CHMX210 and CHMX211.
(2) FGCU requirement
* Limited Access.

Bioengineering (B.S.)

U.A. Whitaker College of Engineering

Department of Bioengineering and Software Engineering

https://www.fgcu.edu/eng/bioengineering/bioengineering-bs.aspx
(239) 590-7390

2019-2020 Catalog Year

Bioengineering plays an important role in transforming discoveries at the intersection of engineering, the life sciences, and health care into innovative products and capabilities by applying new technologies to biomaterials, biomechanics, and biomedical instruments and procedures. Bioengineering combines engineering principles with biology and physiology from the molecular, cell, and tissue level up to the human form. Bioengineers solve problems to help improve human health and quality of life. Bioengineers can work in the medical device and biotechnology industries, in health care and research, and for government agencies, such as the FDA.

The Bachelor of Science in Bioengineering emphasizes the application of new technology to biomaterials, biomechanics, and biomedical tools and procedures. Students learn how to solve problems associated with interactions between living and non-living materials and systems. Bioengineering students complete core courses common to all engineering majors as well as specialized courses in bioengineering. With the addition of another 4-credit general biology course, graduates will meet the pre-requisites for most medical schools.

Graduates of the FGCU B.S. Bioengineering degree program are expected to attain within a few years of graduation:

- Technical competence as bioengineers and recognition as contributors in their communities as professionals or in the pursuit of advanced education.
- Accomplishment in communicating and working collaboratively in a diverse, dynamic, multidisciplinary environment.
- Proficiency in making use of entrepreneurial and/or learning skills to successfully adapt to a global society.

Program Progression and Additional Graduation Requirements

Students admitted to Florida Gulf Coast University as a degree seeking student in good academic standing may declare a major in engineering. All engineering majors must satisfy the academic milestones as described in the student guidebook. Refer to the Bioengineering (B.S.) Student Guidebook for further information on milestones.

- In addition to the program requirements, students must complete:
- A minimum of 129 credits.
- At least 48 of the 129 credits at the upper division (3000 and higher) level.
- A minimum of 32 of the last 60 credits to be taken at FGCU, including 12 credits in the major. Also, BME 4884 and BME 4885 must be taken at FGCU.
- A cumulative GPA of 2.0 for all coursework attempted at FGCU.
- Satisfaction of College-Level Skills and foreign language entrance requirements.
- Satisfaction of the Service Learning requirement. See www.fgcu.edu/connect/
- Satisfy Civic Literacy requirement.

Program Requirements

1. FGCU General Education Program (https://www.fgcu.edu/general_education/)
To prevent or minimize excess hours, select general education courses that satisfy common prerequisite requirements for your intended major.

2. Common Program Prerequisites
For this major, common prerequisite courses with an asterisk (*) require prior knowledge and skills demonstrated through degree acceleration programs (e.g., the College Board's Advanced Placement Program [AP], International Baccalaureate Program [IB], College-Level Examination Program [CLEP], Advanced International Certificate of Education Program [AICE]); dual enrollment; placement exam; or college coursework.

FGCU Course: BSC 1010C Gen'l Biology w/Lab I (4) Minimum grade of C
Acceptable Substitute: [BSCX010 and (BSCX010L or BSCX044L)]

FGCU Course: *CHM 1045 General Chemistry I (3) and CHM 1045L General Chemistry I Lab (1) Minimum grade of C
Acceptable Substitute: (CHMX045 and CHMX045L) or CHMX045C or CHSX440C or (CHMX095 and CHMX095L)
[Prerequisites of MAT 1033 minimum grade of C then MAC 1105 minimum grade of C; or relevant accelerated credit; or placement exam]

FGCU Course: CHM 1046 General Chemistry II (3) and CHM 1046L General Chemistry II Lab (1) Minimum grade of C
Acceptable Substitute: CHMX046C or (CHMX046 and CHMX046L) or (CHMX096 and CHMX096L)

FGCU Course: CHM 2210 Organic Chemistry I (3) and CHM 2210L Organic Chemistry I Laboratory (1) Minimum grade of C
Acceptable Substitute: CHMX210C or (CHMX210 and CHMX210L)

FGCU Course: *MAC 2311 Calculus I (4) and MAC 2312 Calculus II (4) and MAC 2313 Calculus III (4) Minimum grade of C
Acceptable Substitute: (MACX311 and MACX312 and MACX313) or (MACX281 and MACX282 and MACX283)
[Prerequisites of MAT 1033 minimum grade of C then MAC 1105 minimum grade of C then

MAC 1147 minimum grade of C; or relevant accelerated credit; or placement exam]

FGCU Course: MAP 2302 Differential Equations (3) Minimum grade C
Acceptable Substitute: MAPX302 or MAPX305 or ECHX301

FGCU Course: PHY 2048C General Physics w/Lab I (4) Minimum grade of C
Acceptable Substitute: PHYX048C or [PHYX048 and (PHYX048L or PHYX064L)]

FGCU Course: PHY 2049C Gen'l Physics w/Lab II (4) Minimum grade of C
Acceptable Substitute: PHYX049C or [PHYX049 and (PHYX049L or PHYX064L)]

FGCU Course: STA 2023 Statistical Methods (3) Minimum grade of C
Acceptable Substitute: STAX023 or STAX037

3. Engineering Common Core (10 credits)
A minimum grade of C is required in each course.

EGS 1006L Intro to the Engineering Prof. (1)
EGN 1041C Computational Tools for Eng (2)
EGM 3420C Engineering Mechanics (4)
EGN 3641C Engineering Entrepreneurship (3)

4. Required Courses in the Major (47 credits)
A minimum grade of C is required in each course.

BME 3100C Introduction to Biomaterials (3)
BME 3101C Bio Performance of Materials (3)
BME 3261C Biofluid Mechanics (3)
BME 3403C Human Physiology Engineers I (3)
BME 3404C Human Physiology Engineers II (3)
BME 3506C Circuits for Bioengineers (3)
BME 3507C Signals Syst Bioengineers (3)
BME 4211C Biomechanics (3)
BME 4503C Biomedical Instrumentation (3)
BME 4513C Bioengineering Data Acquisition & Control (3)
BME 4632C Biotransport Phenomena (3)
BME 4722 Health Care Engineering (3)
BME 4800C Bioengineering Product Design (3)
BME 4884 Bioengineering Senior Design I (2)
BME 4885 Bioengineering Sr Design II (3)
EGN 3433C Design for Manufacturing (3)

5. Restricted Electives (6 credits)
A minimum grade of C is required in each course.

The Restricted Electives must total a minimum of 6 credit hours, are typically 2000, 3000 or 4000 level, and can include any of the following or other selected courses as approved by the

Academic Advisor for engineering in consultation with the faculty (assuming all course prerequisites are fulfilled). Restricted electives in general should provide increased depth in engineering, science, business, entrepreneurship, mathematics or another area that is pertinent to a career served by the B.S. Bioengineering degree.

For depth in engineering and bioengineering -
BME 4332C Cellular Tissue and Engineering (3)
BME 4504C Bioelectricity (3)
BME 4930 Bioengineering Special Topics (1-3)
EGN 3343C Thermodynamics (3)

For depth in biology and biotechnology -
PCB 2336 Human Genetics (3)
PCB 3023C Cell Biology (4)
PCB 3063C Genetics (4)
PCB 4233C Immunology (3)
MCB 2010C Microbiology with Lab (4)
MCB 3020C General Microbiology (4)

For depth in chemistry and biochemistry -
BCH 3023C Biochemistry (3)
CHM 2211C Organic Chem w/Lab II (4)
CHM 3120C Analytical Chemistry (4)

For depth in mathematics, modeling, and computation -
MAA 4211 Vector Analysis (3)
MAD 3107 Discrete Mathematics (3)
MAD 4401 Numerical Analysis (3)
MAP 3161 Math for Science & Engineering (3)
MAS 3105 Linear Algebra (3)
MHF 2191 Mathematical Foundations (3)
STA 2023 Statistical Methods (3)
STA 2037 Statistics with Calculus (3)

For depth in business and entrepreneurship -
ENT 3004 Entrepreneurship & Creativity (3)
MAN 3025 Principles of Management (3)
MAN 3046 Team & Group Processes (3)
MAN 3600 International Business (3)
MAN 3781 Sustainable Business (3)
MAR 3023 Introduction to Marketing (3) (junior standing required)

Pre-med and other health professions students should typically take -
BCH 3023C Biochemistry (3)
CHM 2211C Organic Chem w/Lab II (4)

6. University Requirements (3 credits)
IDS 3920 University Colloquium (3)

7. Additional Electives (as needed to reach total credit hours required for the degree)

TOTAL CREDITS REQUIRED: 129

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Printed on: 9/6/2019.

Board of Governors, State University System of Florida
Request to Offer a New Degree Program

(Please do not revise this proposal format without prior approval from Board staff)

University of South Florida University Submitting Proposal	Summer 2020 Proposed Implementation Term
College of Arts and Sciences Name of College(s) or School(s)	Department of Cell Biology, Microbiology, and Molecular Biology Name of Department(s)/ Division(s)
Cell and Molecular Biology Academic Specialty or Field	Bachelor of Science in Cell and Molecular Biology Complete Name of Degree
26.0406 Proposed CIP Code	

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

December 3, 2019 Date Approved by the University Board of Trustees	2 December 2019 President — Date
11/13/19 Signature of Chair, Board of Trustees — Date	11/25/19 Vice President for Academic Affairs — Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1 in Appendix A. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2 in Appendix A. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

Implementation Timeframe	Projected Enrollment (From Table 1)		Projected Program Costs (From Table 2)				
	HC	FTE	E&G Cost per FTE	E&G Funds	Contract & Grants Funds	Auxiliary Funds	Total Cost
Year 1	799	719	$2,059	$1,480,433	0	0	$1,480,433
Year 2	900	810					
Year 3	976	878					
Year 4	1,097	987					
Year 5	1,161	1,045	$1,533	$1,602,054	0	0	$1,602,054

Note: This outline and the questions pertaining to each section must be reproduced within the body of the proposal to ensure that all sections have been satisfactorily addressed. Tables 1 through 4 are to be included as Appendix A and not reproduced within the body of the proposals because this often causes errors in the automatic calculations.

Program:	**Cell and Molecular Biology**	**CIP:**	26.0406
		Track:	1
Offered At:	**USF**	**Program Length:**	120 Cr. Hrs.

LOWER LEVEL COURSES

BSCX010C or BSCX010/X010L
Or BSCX040C

BSCX011/X011C or BSCX011C
Or ZOO010/X010L or ZOOX010C
Or BOTX010/X010L or BOTX010C
Or BSCX041C

& CHMX045/X045L or
CHMX040 & CHMX041
Or CHMX045C

& CHMX046/X046L or CHMX046C

& MACX311 or MACX233 or MACX253
Or MACX281 or MACX241

& MACX312 or MACX282 or MACX234
Or STAX023 or STAX024 or STAX321

& CHMX210/X210L & CHMX211/211L
Or CHMX210C & CHMX2111C
Or PHYX053/X053 & PHYX054/X054L
Or PHYX053C & PHYX054C
Or PHYX048/X048L & PHYX049/X049L
Or PHYX048C & PHYX049C

Review of Common Prerequisite Completion within 60 hours	
60	Credit Hours for AA Degree
- **32**	Minus Number of Proposed Common Prerequisite Credit Hours
+ **6**	Plus Number of Common Prerequisites in General Education Core
*34	Equals Number Credit Hours to complete the 30 remaining hours of General Education

Please note that although 30 semester hours of general education remain after counting a general education core mathematics and natural science course, there are at least six hours of courses that are found in most, if not all, general education mathematics and natural science.

Program:	**Forensic Science**	**CIP:**	43.0106
		Track:	1
Offered At:	**FGCU**	**Program Length:**	120 Cr. Hrs.
	UCF		128 Cr Hrs

LOWER LEVEL COURSES

Cr Hours

BSCX010C or BSCX010/X010L

& CHMX045/X045L or
CHMX040 & CHMX041
Or CHMX045C

& CHMX046/X046L or CHMX046C

& MACX311

& MACX312

& CHMX210/X210L & CHMX211/211L
CHMX210C & CHMX2122C

& PHYX048C & PHYX049C[1]
Or PHYX048/X048L & PHYX049/X049L(1)
Or PHYX053C & PHYX054C
Or PHYX053/X053L & PHYX054/X~~053C~~054C

1) UCF requires the calculus-based courses.

Review of Common Prerequisite Completion within 60 hours	
60	Credit Hours for AA Degree
- **43**	Minus Number of Proposed Common Prerequisite Credit Hours
+ **6**	Plus Number of Common Prerequisites in General Education Core
*23	Equals Number Credit Hours to complete the 30 remaining hours of General Education

Please note that although 30 semester hours of general education remain after counting a general education core mathematics and natural science course, there are at least six hours of courses that are found in most, if not all, general education mathematics and natural science.

[1] Accreditation requires calculus based physics sequence.