

Academic Policies Committee Short Form Proposal Template

Schools/departments should use this short form to submit proposals:

- Needing only APC approval (revision of course descriptions including title, number or prerequisites, alternate year listing in the Catalog and the cross listing of courses); or
- Eliminating (or adding?) 1-3 courses which don't impact other programs*; or
- Eliminating a minor, concentration, credential program or certificate which doesn't impact other programs.*

*confirmed by direct administrative report (college dean or provost).

All submitted proposals need to adhere to the following template in order to facilitate the work of the Academic Policies Committee. **For ease of APC Committee reading, please submit your responses in BLUE text.**

- I. **WHO - Academic Unit Name:** [Mathematical, Information and Computer Sciences](#)

- II. **WHAT – Proposal Summary:** [A collection of small changes related to course descriptions, course titles, grading options and catalog copy.](#)

- III. **WHY – Proposal Rationale** (might include):
 - Market analysis (size, market share, revenue generation with analysis and rationale)
 - Impact on support services (library, technology, Student Financial Services, Records)
 - A discussion of department/school and institution mission fit
 - Impact on enrollments (course, department/school, university)
 - Impact on department/school staffing (increase/decrease, ability to staff the course, etc.)
 - Financial Analysis

[During our department's annual review of catalog content, we came across a few items that need to be adjusted to reflect current department practice. These include:](#)

- [modifying a few course descriptions to reflect the adjusted content of the course](#)
- [changing a few course titles to bring them into conformity with what is customary in the guild](#)
- [changing the title of MTH113 to College Algebra to conform with the title that other schools are using and to simplify the transfer process for our Records Office](#)
- [changing our rarely used independent research classes to CR/NC which make grading a students work in the class simpler and more straight forward and making the course descriptions more consistent by adding Chair Approval required to all descriptions](#)
- [fixing a clerical error that we in MICS had in a curricular proposal from two years ago. We accidentally left ISS 472 off of the list of electives for BS in Software Engineering.](#)
- [add MTH363 as a substitute for MTH203 for all computer science majors and computer science tracks in computational science.](#)

[There is no additional impact on library services or technology.](#)

- IV. **HOW – Curricular Changes:**
 - A. Curriculum - Short Form proposals should include current and proposed course descriptions including title, number, units, and if needed prerequisites, alternate year listing in the catalog and cross-listed courses. Language must be exactly as the Department/ School wants it to appear in the

Catalog. Proposing school/department should work with APC chair to generate proposed Catalog text and attach to this form at the time of submission.

Change course descriptions:

CSC 143: Introduction to Computer Programming (3)

Introduces the syntax of a high level programming language with emphasis on the programming environment and the use of the constructs of the language to write simple application programs. Topics include data types, sequential, conditional, and iterative statements, one and multi-dimensional arrays, simple graphical animation, the use of objects, and I/O. Programming assignments get progressively more complex and are designed to demonstrate the use of computing in a variety of disciplines including the natural sciences. Lecture two hours and laboratory two hours each week.

Prerequisite(s): MTH 113 (or equivalent).

CSC322: Data Management for Computational Science (2)

An introduction to data management in the context of scientific research. Students will explore the data storage and manipulation requirements for biology, chemistry, and physics and learn to choose the correct data management tool for a given situation. Tools include Microsoft Excel (with VBA for interface design), R, MATLAB, and Microsoft Access. Students will learn to design, create, and query relational databases using a popular database management system and SQL query language.

Prerequisite(s): CSC 302 or instructor permission.

Change course description and title:

CSC 312: Operating Systems for Software Engineering **Certificate** (2)

A systems course focusing on the structural design and services of operating systems, along with the use of both GUI and command-line interfaces. Special attention is paid to process management and concurrency. Offered on a Quad basis.

Prerequisite(s): CSC 252 or CSC 254.

Change course title:

MTH 113: **Intermediate College** Algebra

A review and extension of elementary algebra, solutions of linear and quadratic equations, radicals, inequalities, linear and quadratic functions, polynomial functions, exponential and logarithmic functions, conic sections, sequences and series, and graphing. Offered every semester.

Prerequisite(s): MTH 099 (or equivalent).

Change grading option from letter to CR/NC and add missing statement to some descriptions for:

MTH 498 - Independent Research in Mathematics I (2)

Independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. **Graded Credit/No Credit.**

Prerequisite(s): Approval of the department chair, consent of instructor, and Junior standing.

MTH 499 - Independent Research in Mathematics II (1)

The continuation of independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. Approval of the department chair is required.

Graded Credit/No Credit.

Prerequisite(s): **Approval of the department chair**, MTH 498 and consent of instructor.

ISS 498 - Independent Research in Computer Information Systems I (2)

Independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. **Graded Credit/No Credit.**

Prerequisite(s): Approval of the department chair, consent of instructor, and Junior standing. ISS499

ISS 499 - Independent Research in Computer Information Systems II (1)

The continuation of independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. **Graded Credit/No Credit.**

Prerequisite(s): Approval of the department chair, ISS 498, and consent of instructor.

CSC 498 - Independent Research in Computer Science I (2)

Independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. **Graded Credit/No Credit.**

Prerequisite(s): Approval of the department chair, consent of instructor, and Junior standing.

CSC 499 - Independent Research in Computer Science II (1)

The continuation of independent research conducted under the guidance of a faculty mentor. The instructor and student propose the research topic. **Graded Credit/No Credit.**

Prerequisite(s): Approval of the department chair, CSC 498, and consent of instructor.

[Fix clerical error in list of requirement for the Computer Science: Software Engineering BS](#)

Lower-Division Requirements:

CSC 143 - Introduction to Computer Programming (3)

CSC 154 - Object-Oriented Programming (4)

CSC 254 - Data Structures and Algorithms (4)

MTH 164 - Calculus I (GE) (4)

MTH 174 - Calculus II (4)

MTH 203 – Introduction to Statistics (3)*

PHL 211 – Ethics (GE) (3)

Total Lower Division Units: 25 (19 units other than GE)

* MTH 383 – Mathematical Probability and Statistics (3) or MTH 363 – Calculus Based Statistics with R (3) may substitute for this class.

Upper-Division Requirements:

CSC 314 - Operating Systems (4)

CSC 323 - Software Engineering (3)

CSC 394 - Programming Languages (4)

CSC 454 - Computer Architecture and Assembly Language (4)

CSC 481 - Senior Seminar in Computer Science (1)

CSC 493 - Software Project (3)

ISS 342 – Project Management and Quality Assurance (2)

ISS 414 - Data Base Systems and Web Integration (4)

MTH 343 - Discrete Mathematics (3)

BUS 313 – Administrative Communication (3)

Choose one sequence from:

CSC 495 - Service Learning in Computer Science (3)

CSC 498 - Independent Research in Computer Science I (2) AND

CSC 499 - Independent Research in Computer Science II (1)

ISS 472 - Internship in Computer Information Systems (2)

HON 498 - Honors Project I (2) AND

HON 499 - Honors Project II (1)

Total Upper Division Units: 33-34

6-7 additional units chosen from (7 if ISS472 chosen for the sequence above):

CSC 302 – Unix and Python Scripting for Computational Science (2)

CSC 311 - R for Computational Science (1)

CSC 412 - Topics in Computer Science (2)

CSC 495 - Service Learning in Computer Science (3)

ISS 373 – Computer Networking and Security (3)

ISS 472 - Internship in Computer Information Systems (2)

Total Elective Units: 6-7

59 units without GE

Add MTH363 as a substitution for MTH203 in all CS majors and CS computational science tracks

Computer Science – Software Engineering BS (see above)

Computer Science – Software Engineering BA

Lower-Division Requirements

CSC 143 - Introduction to Computer Programming (3)

CSC 154 - Objects and Elementary Data Structures (4)

CSC 254 - Data Structures and Algorithms (4)

MTH 164 - Calculus I (GE) (4) *

MTH 203 - Introduction to Statistics (3) **

PHL 211 - Ethics (GE) (3)

Total Lower Division Units: 21 (14 non-GE units)

Note(s):

* MTH 144 may substitute for MTH 164 .

** MTH 383 - Mathematical **Probability and Statistics (3)** or **MTH363 – Calculus Based Statistics with R (3)** may substitute for this class.

Computer Science – Technical Applications BS

Lower-Division Requirements

CSC 143 - Introduction to Computer Programming (3)

CSC 154 - Objects and Elementary Data Structures (4)

CSC 254 - Data Structures and Algorithms (4)

MTH 164 - Calculus I (GE) (4)

MTH 174 - Calculus II (4)

MTH 203 - Introduction to Statistics (3) *

MTH 233 - Linear Algebra (3)

PHL 211 - Ethics (GE) (3)

Total: 28 Units (22 units other than GE)

*MTH 383 - Mathematical **Probability and Statistics (3)** or **MTH363 – Calculus Based Statistics with R (3)** may substitute for this class.

Computational Science Minor - Biology/Environmental Science (Mathematics and Computer Science)

Computer Science Majors - Required Courses

MTH 164 - Calculus I (GE) (4)
 ISS 414 - Data Base Systems and Web Integration (4)
 MTH 383 - Mathematical Probability and Statistics (3) or MTH363 – Calculus Based Statistics with R (3)

Computational Science Minor - Biology/Genetics (Mathematics and Computer Science)

Computer Science Majors - Required Courses

MTH 164 - Calculus I (GE) (4)
 ISS 414 - Data Base Systems and Web Integration (4)
 MTH 383 - Mathematical Probability and Statistics (3) or MTH363 – Calculus Based Statistics with R (3)

Computational Science Minor - Chemistry (Mathematics and Computer Science)

Computer Science Majors - Required Courses

ISS 414 - Data Base Systems and Web Integration (4)
 MTH 383 - Mathematical Probability and Statistics (3) or MTH363 – Calculus Based Statistics with R (3)

Computational Science Minor - Physics (Mathematics and Computer Science)

Upper-Division Requirements

CSC 302 - UNIX and Python Scripting for Computational Science (2)
 MTH 383 - Mathematical Probability and Statistics (3) or MTH363 – Calculus Based Statistics with R (3)

Computational Science Minor - Psychology (Mathematics and Computer Science)

Computer Science Majors - Required Courses

MTH 164 - Calculus I (GE) (4)
 ISS 414 - Data Base Systems and Web Integration (4)
 MTH 383 - Mathematical Probability and Statistics (3) or MTH363 – Calculus Based Statistics with R (3)

B. Summary Information:

Total course/unit additions: 0	Net financial impact: 0
Total course/unit deletions: 0	Library resourcing impact: 0
Staffing unit increase/decrease: 0	

I have reviewed this proposal and the items above and believe the proposal meets all university requirements, don not impact other departments or programs, and is ready for APC review.

Department or School Direct Report: [Maria Zack](#)

Holly Irwin Date 11.13.16

College Dean or Provost as applicable

Note: Submit completed short form proposal to the APC chair not later than one month prior to the APC meeting at which you hope it can be placed on the agenda.

**ACADEMIC POLICIES COMMITTEE
LONG FORM PROPOSAL TEMPLATE**

- Proposals should use this long form if they:
 - Need faculty and/or WASC approval;
 - Request elimination, addition or revision of multiple courses and/or courses impacting other departments or schools; or
 - Request elimination, addition or revision of a major, minor, concentration or credential program.
- All submitted proposals need to adhere to the following template in order to facilitate the work of the Academic Policies Committee.
- **Please read the attached “APC Proposal Reference Information” before completing this form.**
- **For ease of APC Committee reading, please submit your responses in BLUE text.**

SUBMISSION DATE: November 11, 2016

SECTION ONE: WHO

1. **Academic Unit Name:** **Mathematical, Information and Computer Sciences**
2. **Recorded Department/School Vote** (Please provide the number and percentage of department/school faculty who voted in approval for this proposal): **100%**
3. **Impact on Other Department(s)/School(s)** (Are there other departments/schools impacted by this proposal? If so, how did the other department[s]/school[s] vote on this proposal?): **Information systems is a joint degree between MICS and FSB. The proposed changes will have little impact on FSB. FSB vote 11/9 – 100% approval of the faculty present (11/14).**
4. **Impact on Services:**
 - a. Ryan Library:
 - i. What new library acquisitions, if any, will be needed to support the proposed changes (if none, please state that): **None**
 - ii. Person and Date of Contact: _____
 - b. Instructional Technology:
 - i. How many new online/hybrid courses does this proposal include: **None**
 - ii. How many instructors will need online training or course development assistance over the first two sessions if this proposal is approved: **None**
 - iii. Person and Date of Contact: _____

SECTION TWO: WHAT

1. **Overall Proposal Description** (In one sentence, describe the nature of the proposed changes or the proposed new academic offering): **Make some changes to the coursework for Information Systems and add an introductory programming course for non-technical students who want to learn a bit about coding.**
2. **Items** (Please describe each item of the proposal with a phrase or one-sentence abstract. Examples might be, “Item 1: To drop XXX course from XX program. Item 2: To add XX course as a requirement”, etc. Some proposals will only have 1 item. Add item lines as needed.):
 - a. Item 1: **Eliminate the course ISS493 Project in Information Systems (3)**

- b. Item 2: **Add the course ISS403 Computer and Information Security (3)**
- c. Item 3: **Add the course ISS382 Topics in Security (2)**
- d. Item 4: **Eliminate the course ISS123 Introduction to Information Systems and replace with BUS 100 Introduction to Business (3)**
- e. Item 5: **Add CSC111 Computer Programming for the Absolute Beginner (1)**

SECTION THREE: WHY

1. **General Rationale** (Please provide a one-sentence rationale for this proposal.): **These changes allow our department to provide much needed additional coursework in information and computer security, a critical topic in the information technology world. It also allows us to provide a one-unit course in computer programming for students who want to learn a bit of coding or explore if they have the aptitude to pursue a degree in Computer Science or Information Systems.**
2. **Mission** (How do the proposed changes support the mission of the university?): **These changes will add to our students' abilities to get jobs in the fast-growing area of information and system security. It is important for the hacking and security community to have professionals with strong ethical values and moral grounding.**
3. **Internal Factors** (Please provide additional rationale by answering the following questions as applicable: How does the proposal(s) ...address the PLNU strategic plan? ...address factors arising from assessment data or program review findings? ...accommodate the department or school's learning outcomes for the major, minor, concentration, etc.? ...increase departmental effectiveness/efficiency? ...enhance enrollment or generate new revenue? What impact will it have on the size of the major, minor, etc.? Other internal rationale?): **This proposal is grounded in two things:**
 - **The Information Systems degree, in its current format, is two years old. In this time period we have discovered, that our students want and need more training in information and computer security than the curriculum currently provides. In the last year, we have also hired two faculty members with backgrounds in security. Given this information, we looked at our curriculum to determine where we could find units to shift to more coursework in security.**
 - **In their own assessment, FSB has learned that their non-Information Systems majors, have a short fall in their knowledge of management information systems. This has become clear in their use of the Peregrine tests for senior evaluation. The first step in addressing that shortfall is to eliminate ISS123 Introduction to Information Systems and then incorporate some information systems knowledge into BUS100 Introduction to Business. IS students will now take BUS100 with other business majors. Note that we currently have approximately 4-5 students per year that take ISS123 so adding that population to the BUS100 classes will not change the number of sections of BUS100 that the FSB needs to teach.**
 - **The department regularly has students who would like to explore whether or not computer programming is for them or to learn a small amount about coding. Currently our only option is to encourage them to take CSC143**

Introduction to Computer Programming (3) in the fall. We are proposing to offer a one-unit introductory coding class in the spring: CSC111 Computer Programming for the Absolute Beginner (1) to meet the needs of this population (which includes prospective teachers who would like some basic knowledge of coding).

4. **External Factors** (Please provide additional rationale by answering the following questions as applicable: To what extent have external factors motivated this proposal, for example what comparable colleges and universities are doing? ...improvements suggested by alumni or outside reviewers? ...stipulations imposed by outside accrediting agencies? ...other external rationale?.): **San Diego is becoming a Cyber-Security hub. By increasing coursework in security we are able to better prepare them for the needs of our city. In addition, because San Diego is a hub, our department has been able to develop a number of relationships with leaders in the community that will provide adjuncts to teach some specialized security topics outside of our faculty expertise.**

SECTION FOUR: HOW

- A. Assessment Plan** – For new programs, please provide an assessment plan. (If not needed, please state as such.) **Existing Assessment Plan works with these changes.**
- B. Teach-Out** – Provide a plan detailing how students who begin this program will be able to finish if the institution determines that the program is to be closed. (If not needed, please state as such). **N/A**
- C. Catalog Copy**--In this section, please demonstrate in a two-step process how the department/school would like the change to be made. Keep in mind academic policies with regard to number of units for major, minors, certificates, etc. See Academic Proposal Resource Information at the end of this template.
- **Step 1:** In the applicable set of boxes below:
 - For revision, addition or elimination of majors, minors, concentrations or certificates, complete Sections C1-2, entering current and/or proposed catalog text as indicated in the section instructions.
 - For revision, addition or elimination of courses only, please scroll down to and complete Section C-2 only, entering current and/or proposed catalog text as indicated in the section instructions

Section C-1—Program Changes: Proposals for elimination of a major, minor, concentration or certificate should complete the shaded (left) side of this section only, proposals for addition of any of these should complete the unshaded (right) side only, and proposals for revision of any of these should complete both sides of Section A.	
Current Program (or major, minor, concentration, certificate) Name and Introductory Text:	Proposed Revised or New Program (or major, minor, concentration, certificate) Name and Introductory Text:
Current Program Learning Outcome: 1.	Proposed Revised or New Program Learning Outcomes (needed for new majors only):

Current Lower Division Requirements and Unit Numbers for Majors. All requirements for minors, concentrations or certificates:	Proposed Revised or New Lower Division Requirements and Unit Numbers for Majors. All requirements for minors, concentrations or certificates:
Current Total Lower Division Units:	Proposed Total Lower Division Units:
Current Upper Division Requirements and Unit Numbers for Majors. (Highlight new or revised classes in red.)	Proposed Upper Division Requirements and Unit Numbers for Majors. (Highlight new or revised classes in red.)
Current Total Upper Division Units:	Proposed Total Upper Division Units:
Current Elective Options (Highlight new or revised classes in red.):	Proposed Elective Options (Highlight new or revised classes in red.):
Current Total Required Elective Units:	Proposed Total Required Elective Units:
Current Names and Course Titles of Concentration #1 (if any—use additional boxes for each concentration.):	Proposed Names and Course Titles of Concentration #1 (if any—use additional boxes for each concentration.):
Current Total Program Units:	Proposed Total Program Units:
Current Notes (if any) at the bottom of program catalog copy:	Proposed Notes (if any) at the bottom of program catalog copy:
Section C-2—Course Changes: Proposals for course elimination should complete the shaded (left) side only, proposals for course addition should complete the unshaded (right) side only, and proposals for program or course revision should complete <u>both</u> sides of Section B. Proposals involving <u>only</u> course additions, eliminations or revisions should complete <u>only</u> this section.	
Current course code and description (including units, prerequisites and grade type): Text	Proposed new course code and description (including units, course learning outcomes, prerequisites and grade type): Text
Course 1: ISS 493 - Information Systems Project (3) This course presents the student with a strong experience in network and systems design. Students will research the key components of enterprise systems design. Students, working in teams, investigate, design, implement, and present to their classmates a significant information systems project. The project should solve a significant, complex and generalizable problem,	Course 1:

<p>dealing with constraints and trade-offs in the solution. Alternating Years. Offered 2016-2017.</p> <p>Prerequisite(s): ISS 342 and Junior or Senior Standing.</p>	
<p>Course 2: Text</p>	<p>Course 2: ISS 403 Information and Computer Security (3) This course provides an overview of modern topics in information and computer security, including: network security, web security, compliance and operational security, threats and vulnerabilities, privacy and anonymity, application, data and host security, access control, identity management, and cryptography. This class includes theoretical analysis and hands-on activities. Alternating Years Pre-requisites: CSC314 and ISS373 Grading: Letter Learning Outcomes:</p> <ul style="list-style-type: none"> • Students will be able to describe key security vulnerabilities in computer systems • Students will be able to analyze systems for security vulnerabilities
<p>Course 3: ISS 123 - Introduction to Information Systems (3)</p> <p>This course is designed to introduce students to contemporary information systems and demonstrate how these systems are used throughout organizations. The focus of this course will be on the key components of information systems: people, software, hardware, data, and communication technologies, and how these components can be integrated and managed. Annually</p> <p>Corequisite(s): CSC 143 Text</p>	<p>Course 3: Text</p>
	<p>Course 4: ISS382 – Topics in Security (2) Study of an area of information or computer security not otherwise included in the curriculum. Topics are determined by the needs and interest of the students and faculty involved. May be repeated up to a total of six units. Offered on a Quad basis. Prerequisite(s): CSC314 and consent of instructor. Grading: Letter</p>

	<p>Learning Outcomes:</p> <ul style="list-style-type: none"> • Students will be able to apply technology to solve problems • Students will be able to apply techniques to secure computer systems and information
	<p>Course 5: CSC111 Computer Programming for the Absolute Beginner (1) A gentle introduction to computer programming/scripting in the Python language for those with no prior programming experience. Topics include the use/purpose of programming in the context of different academic disciplines along with the basics of writing code. Students will learn to write simple programs using input and output, conditional statements, loops, and graphics. This class is for anyone who wants to join the coding conversation or to gain a background for more rigorous programming courses Prerequisite: MTH099 Grading: Letter Learning Outcomes:</p> <ul style="list-style-type: none"> • Students will be able to write simple programs in Python • Students will be able to explain how a variety of disciplines use coding

- **Step 2:**
 - Arrange a meeting: Arrange a meeting with the APC chair to review the completed portion of the proposal and to receive assistance from the Records liaison in submission of current and/or draft proposed catalog copy called for.
 - Attach Catalog copy:
 - For proposed revisions to existing programs, majors, minors, courses, etc, after this page attach the following supplied by Records: 1) The current year catalog copy for that program, major, etc, and 2) the proposed revised catalog pages for your proposal, based on the information from Step One.
 - For entirely new programs, majors, minors, courses, etc, after this page attach the draft new catalog pages for your proposal supplied by Records based on the information in Step One.

<p>STEP TWO: ATTACH CURRENT AND/OR PROPOSED CATALOG COPY <u>AFTER</u> THIS PAGE AS SEPARATE PAGES.</p>

Information Systems (Mathematical, Information, and Computer Science), B.S.
Program Learning Outcomes

Students who complete the program in Information Systems will be able to:

1. Demonstrate general knowledge of theories and practices in the core areas of business.
2. Critically analyze and apply business knowledge to solve complex business situations.
3. Demonstrate effective business communication through both written and verbal means.
 - a. Students will be able to speak about their work with precision, clarity and organization
 - b. Students will be able to write about their work with precision, clarity and organization
 - c. Students will be able to identify, locate, evaluate, and effectively and responsibly use and cite information for the task at hand.
4. Formulate decisions informed by ethical attitudes and values.
5. Collaborate effectively in teams.
6. Write correct and robust software.
7. Analyze the interaction between hardware and software.
8. Apply critical thinking, technical and information systems knowledge to solve problems.
9. Understand and create arguments supported by quantitative evidence.
10. Demonstrate knowledge of information systems and be prepared for careers that use information systems, and graduate study in fields related to information systems.

Lower Division Requirements

ACC 201 - Principles of Financial Accounting (4)
ACC 202 - Principles of Managerial Accounting (3)
BUS 100 – Introduction to Business (3)
BUS 201 - Legal Environment of Business (3)
CSC 143 - Introduction to Computer Programming (3)
CSC 154 - Objects and Elementary Data Structures (4)
CSC 252 - Data Structures in C++ (2)
ECO 100 - Survey of Economics (GE) (3)
~~ISS 123 – Introduction to Information Systems (3)~~
MGT 212 - Principles of Management (3)
MTH 173 - Business Calculus (GE) (3)
MTH 203 - Introduction to Statistics (3)
Total: 34 Units

Upper Division Requirements

BUS 313 - Administrative Communication (3)
BUS 480 - International Business (3)
CSC 314 - Operating Systems (4)
ISS 342 - Project Management and Quality Assurance (2)
ISS 373 - Networking and Security (3)
ISS 403 – Computer and Information Security (3)
ISS 414 - Data Base Systems and Web Integration (4)
ISS 472 - Internship in Information Systems (2)
ISS 481 - Senior Seminar in Information Systems (1)
~~ISS 493 – Information Systems Project (3)~~
FIN 335 - Business Finance (3)
MGT 488 - Strategic Management (3)
MKT 332 - Principles of Marketing (3)
Total: 34 Units

Major Total: 68 Units

Recommended:

- Cross-cultural experience
- **ISS382 – Topics in Security (2)**
- PHL 211 (GE) (3)
- While not a required class for the major, CSC 323 Software Engineering (3) is recommended.

We will also need to change the list of electives for the following majors:

Computer Science - Software Engineering, BA

4-5 additional units chosen from:

CSC 302 - UNIX and Python Scripting for Computational Science (2)
CSC 311 - R for Computational Science (1)
CSC 412 - Topics in Computer Science (2)
CSC 491 - Independent Studies in Computer Science (1-4)
CSC 493 - Software Project (3)
CSC 495 - Service Learning in Computer Science (3)
CSC 498 - Independent Research in Computer Science I (2)
CSC 499 - Independent Research in Computer Science II (1)
ISS 373 - Networking and Security (3)
ISS 382 – Topics in Security (2)
ISS 403 – Computer and Information Security (3)
ISS 472 - Internship in Information Systems (2)
MTH 174 - Calculus II (4)
MTH 233 - Linear Algebra (3)
MTH 274 - Calculus III (4)
MTH 373 - Mathematical Modeling (3)
HON 498 - Honors Project I (2)
HON 499 - Honors Project II (1)

Computer Science - Software Engineering, BS

6-7 additional units chosen from:

CSC 302 - UNIX and Python Scripting for Computational Science (2)
CSC 311 - R for Computational Science (1)
CSC 412 - Topics in Computer Science (2)
CSC 491 - Independent Studies in Computer Science (1-4)
CSC 495 - Service Learning in Computer Science (3)
CSC 498 - Independent Research in Computer Science I (2)
CSC 499 - Independent Research in Computer Science II (1)
HON 498 - Honors Project I (2)
HON 499 - Honors Project II (1)
ISS 373 - Networking and Security (3)
ISS 382 – Topics in Security (2)
ISS 403 – Computer and Information Security (3)
ISS 472 - Internship in Information Systems (2)

Computer Science – Technical Applications, BS

5-6 additional units chosen from:

CSC 302 - UNIX and Python Scripting for Computational Science (2)
CSC 311 - R for Computational Science (1)
CSC 412 - Topics in Computer Science (2)
CSC 491 - Independent Studies in Computer Science (1-4)

CSC 495 - Service Learning in Computer Science (3)
CSC 498 - Independent Research in Computer Science I (2)
CSC 499 - Independent Research in Computer Science II (1)
ISS 342 - Project Management and Quality Assurance (2)
ISS 382 – Topics in Security (2)
ISS 403 – Computer and Information Security (3)
ISS 472 - Internship in Information Systems (2)
~~MTH 233 – Linear Algebra (3)~~ (note that this is a clerical error, this course is in the requirements)
MTH 274 - Calculus III (4)
MTH 373 - Mathematical Modeling (3)
HON 498 - Honors Project I (2)
HON 499 - Honors Project II (1)

STEP TWO: ATTACH CURRENT AND/OR PROPOSED CATALOG COPY BEFORE THIS PAGE AS SEPARATE PAGES.

SECTION FIVE: SUMMARY CHECKLIST

Review course and staffing impact with your academic unit's direct report (College Dean or Provost).

- Total course additions: **3**
- Total course deletions: **2**
- Total unit additions: **4.5 annual**
- Rotation of courses or deletions of sections to accommodate additions: **0**
- Total unit deletions: **4.5 annual**
- Staff impact (increase or decrease): **0**

Unit calculation:

Deleted:

ISS123 (3 units annually)

ISS493 (3 units in alternating years)

Total: 4.5 units annually

Added:

CSC111 (1 unit annually)

ISS382 (1 unit annually)

ISS403 (3 units alternating years)

Total: 4.5 units annually

Net change of 0 units.

I have reviewed this proposal and the items above and believe the proposal meets all university requirements and is ready for APC review.

Department or School Direct Report: **Maria Zack**

Holly Irwin

Date 11.13.16

College Dean or Provost as applicable