

**College of Science
Proposed Catalog Changes
Effective Summer 2020**

Department of Mathematics

1. Change the following course:

MATH 510 Seminar on College Teaching of Mathematics**1 credit, [max arranged](#)**

Development of skills in the teaching of college mathematics; includes structure of class time, test construction, and various methods of teaching mathematics; supervision of teaching assistants in their beginning teaching assignments. Graded P/F.

Prereq: Permission.

Rationale: The purpose of this course is to help our graduate students develop skill in the teaching of college mathematics. Thus, the graduate students, who are teaching assistants, are required to attend this seminar every fall semester. The course contents vary as the teaching environment (such as the development of new teaching methods, the integration of technology, and the application of new teaching regulations) changes. The students should, therefore, be able to earn credit every time they take the course. We request to make the course repeatable (1 credit per occurrence).

Department of Physics

1. Change the following course:

PHYS 490 Research**~~10~~-6 credits, max 6**

Undergraduate research or thesis.

Prereq: Permission of Instructor.

Rationale: To allow a zero credit option for students who wish to volunteer as undergraduate researchers (without pay or credit). There is no added workload for the department.

Department of Statistical Science

1. Make the following curricular changes to the **B.S. in Statistics**:

Statistics (B.S.)

Required course work includes the university requirements (see regulation J-3) and:

| | | |
|--------------------------------------|----------------|-------|
| MATH 170 | Calculus I | 4 |
| MATH 175 | Calculus II | 4 |
| MATH 275 | Calculus III | 3 |
| MATH 330 | Linear Algebra | 3 |
| Select one of the following options: | | 39-58 |
| General | | |
| Actuarial Science and Finance | | |
| Total Hours | | 53-72 |

A. General Option

| | | |
|----------|-----------------------------|---|
| STAT 301 | Probability and Statistics | 3 |
| STAT 407 | Experimental Design | 3 |
| STAT 422 | Sample Survey Methods | 3 |
| STAT 431 | Statistical Analysis | 3 |
| STAT 436 | Applied Regression Modeling | 3 |
| STAT 451 | Probability Theory | 3 |
| STAT 452 | Mathematical Statistics | 3 |

Select two of the following: 6

| | |
|----------|--------------------|
| CS 120 | Computer Science I |
| STAT 426 | SAS Programming |
| STAT 427 | R Programming |

Other approved courses

Select 12 credits from the following: 12

| | |
|----------|--|
| CS 479 | Data Science |
| MATH 310 | Ordinary Differential Equations |
| MATH 428 | Numerical Methods |
| MATH 437 | Mathematical Biology |
| MATH 438 | Mathematical Modeling |
| MATH 471 | Introduction to Analysis I |
| MIS 455 | Data Management for Big Data |
| STAT 456 | Quality Management |
| STAT 514 | Nonparametric Statistics |
| STAT 517 | Statistical Learning and Predictive Modeling |
| STAT 535 | Introduction to Bayesian Statistics |

Total Hours 39

Courses to total 120 Credits for this degree

B. Actuarial Science and Finance Option

Math Courses

| | | |
|----------|---------------------------------|---|
| MATH 310 | Ordinary Differential Equations | 3 |
| MATH 451 | Probability Theory | 3 |
| MATH 452 | Mathematical Statistics | 3 |

400-Level Math Courses: 9

Three additional courses chosen from Math courses numbered 400 and above. May include Stat 422.

Supporting Courses 12

| | | |
|------------------------|--|-----|
| ACCT 201 | Introduction to Financial Accounting | |
| ACCT 202 | Introduction to Managerial Accounting | |
| FIN 301 | Financial Resources Management | |
| STAT 431 | Statistical Analysis | |
| BUS 339 | Spreadsheet Modeling | 1-3 |
| or STAT 426 | SAS Programming | |
| CS 112 | Computational Thinking and Problem Solving | 3-4 |
| or CS 120 | Computer Science I | |
| STAT 251 | Statistical Methods | 3 |
| or STAT 301 | Probability and Statistics | |
| STAT 433 | Econometrics | 3 |
| or STAT 550 | Regression | |
| <u>Or STAT 436</u> | <u>Applied Regression Modeling</u> | |

Select one of the following: 4-6

| | | |
|------------------------|--|--|
| ECON 201 & ECON 202 | Principles of Macroeconomics and Principles of Microeconomics | |
| ECON 272 | Foundations of Economic Analysis | |

Select three courses selected from the following: 7-9

| | | |
|----------|-------------------------------------|--|
| ECON 351 | Intermediate Macroeconomic Analysis | |
| ECON 352 | Intermediate Microeconomic Analysis | |
| FIN 302 | Intermediate Financial Management | |
| FIN 381 | International Finance | |
| FIN 408 | Security Analysis | |
| FIN 463 | Portfolio Management | |
| FIN 464 | Derivatives and Risk Management | |
| FIN 465 | Introduction to Market Trading | |
| FIN 469 | Risk and Insurance | |
| MATH 455 | Applied Actuarial Science | |

STAT 419, 426 or 427

Introduction to SAS/R Programming, SAS Programming, or R Programming

Total Hours

51-58

Courses to total 120 credits for this degree

Rationale: STAT 436 was decided to be a more appropriate course for undergraduate students. One of STAT 419, 426 and 427 should be added to the list of elective courses as a choice as they are appropriate courses for the degree. The intent of the catalog language is that at most one of these can be counted towards the required electives.

This minor adjustment in the degree curriculum will not alter the learning outcomes or assessment plan.

2. Make the following curricular changes to the **Minor in Statistics**:

Statistics Minor

| | | |
|--|---|----|
| STAT 422 | Sample Survey Methods | 3 |
| STAT 431 | Statistical Analysis | 3 |
| MATH 160 | Survey of Calculus | 4 |
| or MATH 170 | Calculus I | |
| STAT 251 | Statistical Methods | 3 |
| or STAT 301 | Probability and Statistics | |
| Select three courses from the following: | | 9 |
| MKTG 421 | Marketing Research & Analysis | |
| MATH 330 | Linear Algebra | |
| MATH 451 | Probability Theory | |
| MATH 452 | Mathematical Statistics | |
| <u>STAT 419, 426, or 427</u> | <u>Introduction to SAS/R Programming, SAS Programming, or R Programming</u> | |
| STAT 433 | Econometrics | |
| STAT 456 | Quality Management | |
| STAT 514 | Nonparametric Statistics | |
| STAT 519 | Multivariate Analysis | |
| Total Hours | | 22 |

Courses to total 22 credits for this minor

Distance Availability: Yes, via Engineering Outreach

Rationale: This minor addition to the curriculum of the minor will not alter the assessment plan.

The rationale for the change is that these courses (STAT 419, 426 and 427) are appropriate to the minor. Note that the intent of the requested catalog language is that at most one of these three can be counted towards the elective credits for the minor.