COLLEGE OF SCIENCE
Proposed Catalog Changes

Geological Sciences

1. Add the following prerequisite to all applicable Geology courses (Geol) courses [Effective: Summer 2014]

   **Prerequisite:** Math 143 with a grade of 'C' or better is a prerequisite to all upper-division Geol courses.

Mathematics

1. Change the following courses [Effective: Summer 2014]

   **Math 415 Cryptography (3 cr)**
   Congruences, Modular arithmetic, Private key cryptosystems, Public key cryptosystems, and Applications. The role of modern mathematics in information age society.
   **Prereq:** Math 330

   **Rationale:** In Math 415, students learn how to integrate modern mathematics to protect information, which has become a central issue in the information age. Students are expected to learn how to synthesize subject matters they have acquired and integrate cross-disciplinary knowledge to solve such a real-world problem.

   **Math 451 Probability Theory (3 cr)**
   Same as Stat 451. Random variables, expectation, special distributions (normal, binomial, exponential, etc.), moment generating functions, law of large numbers, central limit theorem. Cooperative: open to WSU degree-seeking students. (Fall only)
   **Prereq or Coreq:** Math 275, Graduate standing, or Permission

   **Rationale:** The current prerequisite allows students with graduate standing to take Math 451 without any additional requirements. The suggested prerequisite prevents students with graduate standing, who have not yet taken sufficient math courses, from taking Math 451.

   **Math 571 Functional Analysis I (3 cr)**
   Linear topological spaces and linear operators. (Fall, Alt/yr)
   **Prereq:** Math 536-535

   **Rationale:** Currently Math 536 (Probability Theory) is listed as a prerequisite, which is not the necessary preparation for Math 571.

   **Math 572 Functional Analysis II (3 cr)**
   Linear topological spaces and linear operators. (Spring, Alt/yr)
   **Prereq:** Math 536-537

   **Rationale:** Currently Math 536 (Probability Theory) is listed as a prerequisite, which is not the necessary preparation for Math 572.

   **Math 576 Graph Theory II (3 cr)**
   Basic concepts and theorems; topics include trees and connectivity, eulerian and hamiltonian graphs, graph colorings, matchings, graph decomposition, and extremal graph theory. (Spring, Alt/yr)
   **Prereq: Instructor Permission**

   **Rationale:** Currently no prerequisites are required. The course contents of Math 575 (Graph Theory I) and Math 576 depend on the instructor’s interest. Therefore, these two courses could be independent. But it could also be the case that the instructor of Math 576 assumes students’ mastery of Math 575. The suggested change encourages students to consult the instructor about his/her expectations for Math 576.

2. Change the curricular requirements of Mathematics (B.S.) [Effective: Summer 2014]

   **E. Applied - Actuarial Science and Finance Option**
   This curriculum provides the background to become an actuary and work in the insurance industry, or to work in finance.

   **Math courses:**
   - Math 310 Ordinary Differential Equations (3 cr)
   - Math 451 Probability Theory (3 cr)
   - Math 452 Mathematical Statistics (3 cr)

   Three additional courses chosen from Math courses numbered above 400 or Stat 422 (9 cr)
Supporting courses:

- Acct 201 Introduction to Financial Accounting (3 cr)
- Acct 202 Introduction to Managerial Accounting (3 cr)
- **Econ 201** Principles of Macroeconomics (3 cr)
- **Econ 202** Principles of Microeconomics (3 cr)
- Bus 339 Spreadsheet Modeling (1-3 cr)

One of the following choices (4-6 cr):

- **Econ 201** Principles of Macroeconomics (3 cr)
- **Econ 202** Principles of Microeconomics (3 cr)

OR

- **Econ 272** Foundations of Econ Analysis (4 cr)

One of the following (3 cr):

- Bus 301 Financial Management (3 cr)*
- Bus 342 Product and Process Planning (3 cr)*

One of the following (3-4 cr):

- CS 112 Introduction to Problem Solving and Programming (3 cr)
- CS 120 Computer Science I (4 cr)

One of the following (3 cr):

- Stat 251 Statistical Methods (3 cr)
- Stat 301 Probability and Statistics (preferred) (3 cr)

One of the following (3 cr):

- Stat 426 SAS Programming (3 cr)
- Stat 431 Statistical Analysis (3 cr)

At least three courses selected from the following (7-9 cr):

- Bus 302 Intermediate Financial Management (3 cr)
- Bus 381 International Finance (3 cr)
- Bus 408 Security Analysis (3 cr)
- Bus 463 Portfolio Management (3 cr)
- Bus 464 Derivatives and Risk Management (3 cr)
- Bus 465 Introduction to Market Trading (3 cr)
- Bus 469 Risk and Insurance (3 cr)
- Econ 351 Intermediate Macroeconomic Analysis (3 cr)
- Econ 352 Intermediate Microeconomic Analysis (3 cr)
- Math 455 Applied Actuarial Science (1 cr)

One course selected from:

- Stat 433 Econometrics (3 cr)
- Stat 550 Regression (3 cr)

**Courses to total 120 credits for this degree**

Rationale: The Society of Actuaries now accepts either Econ 272 or Econ 201 and 202.