

UNIVERSITY CURRICULUM COMMITTEE

Minutes #15 approved (2019-2020 Undergraduate Catalog)

March 7, 2018

Members Present: Ciani, Cook, Dustin, Kerber, Knauss, Mikulec, Munyer, Murphy, Robertson, Rosenthal, Sanden, Segelcke, Shim, Standard, Thomas, Trefzger, Wolf, Zeng

Members Absent: Duce

Guests Present: Krzysztof Ostaszewski, Mathematics; Alan Lessoff, History; Jess Ray and Danielle Lindsey, Registrar's Office

1. Standard convened the meeting at 3:07 p.m.
2. **INTRODUCTIONS:** Members and guest introduced themselves.
3. **APPROVAL OF MINUTES:** #14, February 21, 2018.

Cook moved to approve the minutes as amended, Dustin seconded, and the committee approved by acclamation.

4. **PROPOSAL ACTION:**

MAT ACTUARIAL SCIENCE SEQUENCE (Revise) Wolf and Robertson

With no further discussion needed, Wolf moved to suspend the practice of “discussion one week-action the next” and vote on the proposals today, Cook seconded and the committee approved by acclamation. Wolf moved to approve the proposal for revision of the Actuarial Science Sequence in the Major in Mathematics, Robertson seconded, and the committee moved to approve by acclamation. Catalog copy follows.

Actuarial Science Sequence

This sequence of the major is designed to teach the students the mathematical foundations of actuarial science, and to prepare them for careers as actuaries in a variety of fields dealing with the risk of potential financial losses, such as life insurance, health insurance, financial risk management, property/casualty/liability insurance, pensions, or employee benefits.

—71 hours required.

—Required courses: MAT 145, 146, 147, 175, 280, 298, 350, 351, 353, 380, 381 or 355, 383, 384 and ACC 131, 132; ECO 105; FIL 242, 250, 341; IT 168.

—Submission of senior portfolio and approval of it by the advisor (see actuarial advisor).

—Students are encouraged to take MAT 283 (actuarial computing), and intensive reviews for actuarial examinations offered through the Illinois State University Conferencing Unit, as well as participate in the Statistical Project Competition held annually at Illinois State University.

Suggested Mathematics Schedules for Actuarial Science Majors:

Semester Courses

- | | |
|---|------------|
| 1 | 145 |
| 2 | 146 |
| 3 | 147, 175 |
| 4 | 280, 350 |
| 5 | 351, 380 |
| 6 | 353, 383 |
| 7 | 381 or 355 |
| 8 | 384 |

Required courses in the Actuarial Science Sequence (outlined above) provide the contents of the Society of Actuaries examinations P, FM, IFM, STAM, and LTAM, or the Casualty Actuarial Society examinations 1, 2, 3F, MAS I and MAS II, as well as complete Validation by Educational Experience (VEE) requirements. Courses correspond to professional actuarial examinations as follows:

SOA exam P (same as CAS exam 1): MAT 350

SOA exam FM (same as CAS exam 2): MAT 280

SOA exam IFM and CAS exam 3F: MAT 383 and FIL 242

SOA exam LTAM: MAT 380 and MAT 381

SOA exam STAM: MAT 381 and 384

SOA exam SRM: MAT 353 and MAT 355

SOA exam PA: MAT 353, MAT 355, and Statistical Project Competition

CAS exam MAS I: MAT 351, MAT 353, MAT 355, MAT 380, and MAT 381

CAS exam MAS II: MAT 355, MAT 381, MAT 384

VEE Mathematical Statistics: MAT 351

VEE Economics: ECO 105

VEE Accounting and Finance: ACC 131, FIL 242 and FIL 341

5. PROPOSAL DISCUSSION:

MAT ACTUARIAL SCIENCE SEQUENCE (Revise)

Wolf and Robertson

Krzysztof Ostaszewski was present from the Department of Mathematics. Wolf distributed a handout and presented a review of the proposal for revision of the Actuarial Science Sequence in the Major in Mathematics.

- The Society of Actuaries and the Casualty Actuarial Society are implementing substantial revision of both professional actuarial examinations and Validation by Educational Experience (VEE) requirements effective in 2018. Mathematics obtained full certification for their classes for the new VEE requirements.
- Both societies are adding statistical modeling/data science requirements. In response, Mathematics created MAT 355 and the annual Statistical Project Competition, open to all Illinois State University students. Students will choose between MAT 381 and MAT 355 depending on which course is more appropriate for the credentials they wish to pursue. In 2018, the Society of Actuaries will require advanced topics of life insurance, life annuities and pensions models (covered in MAT 381). The Casualty Actuarial Society will require advanced statistical learning/modeling topics (covered in MAT 355). Math proposes revision of the curriculum to accommodate the need of the students to be able to choose either of these two paths.
- All derivative securities topics were removed from the Financial Mathematics (FM) examinations. MAT 280 covers topics of the FM examination. They had previously increased the number of hours of MAT 280 from 3 to 4 when derivative securities topics were added and now that they are removed, have gone back to 3 hours.
- They propose adding one hour of MAT 298 Professional Actuarial Internship to replace the one hour removed from MAT 280. The reason for adding an internship is to aid students with employment prospects.

Comments/Questions:

- In the past, only the submission of the senior portfolio was required. The proposal now says “submission of senior portfolio and approval of it by the advisor.” The reviewers asked if this is a change, or simply a change in wording to more accurately reflect existing practice. Ostaszewski replied that they changed the wording to state existing practice.
- The reviewers asked if students would be aware of the difference between MAT 355 and 381 since they need to choose one of the courses depending on which path they want to take.

Ostaszewski said that students can succeed in either of the two sides of the profession with either of the courses, but opening the path to MAT 355 will make things easier for all students, especially those who want to work in property casualty insurance.

- The reviewers asked if MAT 298 should be more than one hour since it seems to be of great importance to students to be competitive in the job market after graduation. Ostaszewski replied that the one credit hour of MAT 298 is the minimum they propose. Students will be able to take more hours if they want; a majority of current students take MAT 298 for more than one hour. Standard noted MAT 298 is not in the schedule provided to which Ostaszewski responded that there is no fixed time for students to take the internship; they need to pass the exam and take the internship as soon as possible.

With no further discussion needed, Wolf moved to suspend the practice of “discussion one week-action the next” and vote on the proposals today, Cook seconded and the committee approved by acclamation. (See “Proposal Action” above.)

6. IDS MINOR 8-YEAR REVIEWS:

MINOR IN COGNITIVE SCIENCE Zeng and Shim

Zeng distributed a handout and presented a review of the IDS Minor in Cognitive Science self-study.

- Dr. David L. Anderson, former director of the program, prepared this self-study report. Lana Kühle is the current Director of the Cognitive Science Minor. She started this position last fall.
- Students in the Minor must complete a minimum of 24 hours in one of the four emphases: Computer Science, Linguistics, Philosophy, and Psychology. IDS 265 (Introduction to Cognitive Science: Computers, Minds, Brains, and Robots) is the only course required for all students. Students will select other classes listed under the emphasis of their interest. Students are required to seek an advisor through the Director of Cognitive Science Studies, and in consultation with the advisor, students will choose an emphasis that is outside of their major and develop a planned course of study.
- From 2009 to 2016, 27 students completed the minor; 13 students signed up for the Minor but never completed it. Currently there are 10 students enrolled in the Minor.
- The self-study reported on the demographic data - what majors tend to choose what emphasis. Based on the demographic data, Dr. Anderson recommended adding an emphasis in neuroscience, reducing the quantitative requirement from 6 hours to 3 hours, and creating a one-page profile of the emphasis in linguistics to provide students clearer information about the courses. Dr. Anderson also discussed strategies to recruit more students.

Questions and Recommendations from Reviewers:

- Program Leadership and Faculty Engagement: The self-study does not include information about how the director oversees and coordinates the program. In addition, as the minor requires students to work closely with advisors, we would like to know how advisors for the four emphases are selected and engage with students. Other than advising, how do faculty from different disciplines engage and participate in this program? *Kühle’s response: As of right now, I am the only point of contact for all the students that are in the minor or interested in the minor (whether they talk to their major advisor about the minor I do not know). They contact me, and I meet with them to discuss their course paths and details of the minor. Aside from this, I also teach the intro course — IDS 265. The plan is to meet with each of the affiliated program chairs to renew/discuss their involvement in the minor going forward, and ask them to assign an advisor that I can work with to help attract students to the minor. Other than advising, other faculty have been part of the minor in terms of giving visiting lectures in the IDS 265 course, promoting the minor to their students, and attending any workshops or events organized for the minor.*
- The program’s website (<https://philosophy.illinoisstate.edu/academics/minor/cogsciminor>) lists contact information for advisors from eight different disciplines. These eight disciplines are

more than the four emphasis areas. Do students in the minor program need to find an advisor for their selected emphasis or advisor from their major program? Can the advising contacts be added to the University Catalog? *Kühle's response: First, there is only one point of contact for the main advising in the minor and that is myself, the director. Advisors in the associated disciplines can help promote the minor and encourage students that have a cognitive science interest to take the minor, but nobody other than myself can enroll students in the minor. The website will have to be changed to reflect this.*

- Rationale for curriculum: The self-study does not provide a description of the minor and rationale, nor is there one in the University Catalog. However, we found the information on the program's website: "Cognitive Science is a pioneering interdisciplinary field which studies the nature of intelligent systems, both biological and artificial...The minor in Cognitive Science at ISU is designed to enhance students' program of study in Cognitive Science-related fields by allowing students to create the best minor for students' individual needs..." We think the description and rationale are clear and informative. We recommend adding this information (maybe a shortened version) in the University Catalog. *Kühle's response: I completely agree that this needs to be added to the website. In fact, I think the website needs some serious updating which I have planned for the very near future.*
- Student Learning Outcomes for the Minor: The Self-Study does not include learning outcomes. We suggest the program Director and participating members establish specific goals for the minor, to facilitate high quality education for the program. *Kühle's Response: Agreed. This is on my agenda.*
- Student Learning Outcome Assessment Plan: The Self-Study does not include an assessment plan. We would like to know whether any assessment plan has been made. If not, we suggest that the program develop a Student Learning Outcome Assessment plan and implement it. *Kühle's response: As far as I know, no assessment plan has been made. It is on my agenda to make one.*
- Dr. Anderson's recommendation on adding an emphasis in neuroscience: There are currently four emphases. With an average enrollment of 10 students, do you think adding a new emphasis will strengthen the minor? *Kühle's response: I think there are good reasons for adding an emphasis in neuroscience, but I agree that this might not work given the current set-up. For now, I'm not concerned to add an emphasis. In the future, I may want to re-organize the minor slightly to change the emphasis to reflect more correctly the changing student interests, but for now the plan is to keep what is there.*

Reviewers' Summary:

The reviewers think the Minor in Cognitive Science is a highly valuable interdisciplinary program, and will greatly benefit students by extending their fields of study and research. There have been great efforts and thoughts put into designing this minor, with four emphases and six groups of courses. It is a program that involves lots of coordinating and advertising. Lana Kühle, the new program director has addressed the reviewers' questions and concerns, and accepted the committee's recommendations. For the record, here are the recommendations to strengthen the Minor:

- 1) Define and develop Student Learning Outcomes.
- 2) Create Student Learning Outcome Assessment Plan.
- 3) Establish a better-structured advising system to help more efficient supervising and coordination. (This was strongly recommended at the UCC meeting. The committee expressed concern that it would be too overwhelming for one person to maintain and develop this minor. The committee emphasized the importance of working with committed advisors from affiliated programs.)
- 4) Update the program's website to reflect changes.
- 5) Include a description of the program in the University Catalog.
- 6) Develop plans to better promote the program.

MINOR IN URBAN STUDIES**Mikulec and Duce**

Mikulec distributed a handout and presented a review of the IDS Minor in Urban Studies self-study submitted by the current program advisor Dr. Alan Lessoff, Professor of History, on December, 2017.

- The program is designed for students who wish to learn about urban places from a social sciences perspective, although the minor will also benefit those with majors in the arts and humanities, business, education, social services, and other fields. The program's features include required coursework in urban geography, history, political science, and sociology or anthropology. Students may choose from a range of elective courses, independent study with urban studies faculty, and an optional internship.
- Students in the minor must complete 21 hours with a 12 hour core and 9 elective hours.
- Enrollment and graduation data was provided, with 2015 showing the largest number of students enrolled and graduating.
- Overview of the Curriculum:

a. Rationale for curriculum

The minor has undergone several curricular revisions and changes since the last self-study, the most significant of these being the termination of the sequence for Urban Education through the College of Education. This process began in the 2015-16 school year and was implemented in the Fall 2017 semester. Although the urban education sequence drew interest from students, the requirements of the teacher education programs made it difficult to plan and ensure that the needed courses would be available on a regular basis. For this, and several other reasons, the Urban Education sequence was eliminated from the minor.

b. Student learning outcomes for the minor

Although developing student learning outcomes was a recommendation from the last UCC report, the efforts in trying to negotiate the Urban Education sequence did not allow for this in this most recent report.

c. Coherence and overall design of curriculum and course offerings

The elimination of the urban education sequence did allow for the minor to return to its roots in a social-science-based interdisciplinary curriculum, the goal of this being to prepare students who are interested in urban planning and policy, public administration, urban social welfare, museums and historical sites. The faculty revised the curriculum to reflect current offerings within their disciplines. The minor offers core courses in geography, history, sociology, and politics. It offers electives in those disciplines as well as other relevant areas on campus. The program also helps students to arrange internships in locations ranging from the Town of Normal's planning department to social service agencies in Chicago. The minor was able to add three tenure-line faculty to teach urban-related courses in the Geography program.

d. Availability of required recommended courses

- The changes to the minor were put in place in the fall 2017 semester; however, the Urban Studies Minor Requirements checklist on the website still reflects information from the 2016-17 year. The report does identify the need to update this information.
- Due to several retirements, the minor will need to drop ANT 388 as a core option in Sociology-Anthropology. The program advisor will teach the HIS 242 course until another faculty is identified or joins the History Department.
- TEC 329 Sustainable Buildings and Urban Development was added to the list of electives.
- Of the required classes, HIS 322 and GEO 336 are generally offered once per year. If for some reason they are not offered in a year, there are classes that can substitute for those. At least one of the sociology and political science classes are usually available each semester.

e. Student learning outcome assessment plan for the minor

Although the report recognized that the changes to the urban education sequence in the College of Education addressed some issues with the minor, formal assessment has not yet been put in place. The report recognizes that this is an issue that needs to be addressed.

- Core faculty in each of the disciplines of this interdisciplinary minor:
 - Department of Geography-Geology: Dr. R.J. Rowley
 - Department of History: Dr. Alan Lessoff
 - Department of Politics and Government: Dr. Lori Riverstone-Newell
 - Department of Sociology and Anthropology: Dr. Michael Dougherty

The group shaped the recent review and revision of the curriculum and has reviewed and commented on this report.

- Advisement: Alan Lessoff, University Professor of History continues to advise the program with the help of Ronald Gifford, Assistant Chair of the History Department.
- Recommendations: The self-study produced two main recommendations and one proposed change
 - a. Systematic assessment of program outcomes is needed. As mentioned above, this was recommended in the previous UCC review but was not implemented due to the time spent on the deletion of the Urban Education Sequence in the minor.
 - b. The report states that more systematic recruitment is needed. Efforts have been made through the advisor visiting courses that are likely recruiting grounds, and through revising the Minor webpage. The report states that flyers for the program are out of date and need revision.
 - c. A proposed change to the minor is to drop ANT 388 Historical Archaeology from the core course choices.

Questions from Reviewers:

1. Although the report states that enrollment is steady there appears to be a drop each semester from a peak of 24 in spring 2016 to 7 this semester. Is this a concern? *Lessoff's answer: Since I took over advising in 2009, I have files for 29 students who signed up for the minor itself, as opposed to the individual courses--that includes both the social science sequence and the education sequence, which has since been cancelled, and that includes currently enrolled students. On February 13, I received a list from the registrar's office that showed 10 students enrolled in the program, including students left over from the cancelled urban education sequence, which is a big part of this story. One social science student has signed up since, and one of the urban education students has dropped. I did a hand count of my records from 2009 through the present, and I came up with these figures, which may be off by a student or two in one direction or the other but are pretty good overall. This is counting students who completed the process of enrolling in the minor and contacting the advisor about it: General Sequence: enrolled: 19; completed: 9; still enrolled: 7; Education Sequence: enrolled: 17; completed: 8; still enrolled (residual for cancelled sequence): 3. I would have to see the names of the individual students to have an explanation, but in general, the program hovered around 10-12 students in both sequences. It was not intended that the program be much larger than that--it was intended that students work closely with instructors involved in the program, who were doing this in addition to their normal responsibilities.*

Reviewer's Note: There is a discrepancy in the number of students graduated between the information provided by the Registrar and that provided by the program.

2. What are the intended student learning outcomes for the minor? What assessment is currently being used to measure these learning outcomes? How does this assessment data inform the minor? *Lessoff's answer: The minor is intended to provide an introductory background to various disciplines related to urban studies, primarily for students who intend to go on for further education in urban planning, urban affairs, or related fields. In general, these small, interdisciplinary minors don't need elaborate assessment procedures, similar to majors or certification-related programs. Something simple will do.*
3. The 2010 report indicated that further assessment was needed. What plans are envisaged to implement new or improved assessment of program outcomes? This would seem to be a matter of some urgency, given the recommendation from 2010. *Lessoff's answer: As stated above, the time-consuming, pressing problem that the program faced surrounded how to deal with the urban education sequence. Now that we have dealt with problem by abolishing the sequence, we can think about matters*

of assessment. My sense is that the most appropriate form of assessment would be an attempt at tracking graduates to determine whether, a few years out, they are doing things related to the minor and how in retrospect they feel that the minor helped.

4. Is there anything that outlines which courses for the minor, beyond the core courses, will be offered and when over the next several years? For example, during the fall 2018 semester, which courses that could count for the minor will be offered on campus? And consequently, spring 2019, fall 2019, spring 2020, etc. *Lessoff's answer: We do not control offerings at the department level--at most, one or two students from this minor will be in any section of a listed course at any one time. The reason for the long list of electives is to provide ample options for students. Also, we work individually with students who have diverse interests to fit non-listed courses into the program--we routinely file degree-plan waivers for students who have individually designed programs of this sort. In the social-science sequence, availability of courses is not a problem. This was quite a problem in the education sequence, but that's another matter.*
5. To what extent are the core faculty involved in/engaged with the program? Who is overseeing the minor program? Is this the same person that convenes strategic planning meetings, course planning, recruitment, etc.? *Lessoff's answer: The advisor oversees the program, with help from the History Department advisor. The different social-science departments involved have liaison persons, and we communicate and consult regularly about the matters above. We meet as needed. We consulted in great detail concerning last year's program revision, which also entailed numerous meetings with urban education faculty and staff. The different departments plan the courses, and we have a standing arrangement to waive in students in the minor to courses that require department permission. One of the hopes for the urban education sequence was that the minor could acquire something of an institutional home and support from the Urban Center in the College of Education, but that fell flat, which pushed us back to the informal management which is typical of these small, interdisciplinary minors.*
6. Can you please provide more description about the process in which the program faculty engaged for the self-study? *Lessoff's answer: Since we had already discussed the program in detail during the recent curriculum revision, the various social-science liaisons were fine with the advisor drafting the report and then reviewing it and making suggestions.*
7. What plans are in place to update the minor 's website, which still reflects 2016-2017 information? *Lessoff's answer: The checklist needs updating to reflect the current degree plan. We will get that done within the next few weeks.*
8. Can you provide more information on the advisement process? Are there any issues with advisement? At what point do students interested in the minor meet with the program coordinator/advisor? *Lessoff's answer: When students apply to the minor, the advisor reviews their application and sends them a Word copy of the degree plan. They fill this out and then as soon as possible meet with the advisor. No student can pursue the program without direct consultation with the advisor. Students in the minor then meet with the advisor regularly.*

Conclusion of Reviewers:

The reviewers agree with the recommendations of the self-study, including identifying student learning outcomes and putting assessments in place to measure these outcomes. In recent years, progress on these two items was greatly impacted by the issues concerning the Urban Education Sequence. Now that these issues have been resolved, an opportunity to implement these items presents itself. The reviewers strongly encourage this process. There is a discrepancy in the number of students who have graduated from the minor, which should probably be addressed for record keeping purposes.

Lessoff mentioned that enrollment numbers went down when they dropped the Urban Education Sequence. Standard asked if there will be problems getting the numbers back up. Lessoff answered that he thought they will be able to build the numbers back up. There are more Geography, Geology, and the Environment faculty to teach the GEO electives in the Minor, and that should help.

7. LIAISON REPORTS:

- a. Council on General Education – Standard reported that CGE met and approved two IDS courses, and did not approve a SOC course.
- b. Council for Teacher Education – Dustin reported that the CTE curriculum subcommittee met and approved two program proposals. Rosenthal reported that the full CTE met and want to delay the discontinuation of CAEP and have asked ISBE for an extension.
- c. Academic Affairs Committee – Duce reported (via email) on the February 21 meeting:
 1. There was a discussion of the Annual Report submitted by the Textbook Affordability Committee. Two surveys had been conducted, one each of faculty and students (the latter had a low sample, but was enough to raise concerns). 47 students reported not buying books required (presumably for financial reasons). The average spent per year was over \$500. Of the survey sent to department chairs, only 9 responded out of 35 sent. This shows a need to further raise awareness.
 2. There was a continuation of the discussion of the AMALI proposal. The proposal to create a committee to evaluate study abroad courses and other AMALI designations seems to not be supported by the administration currently. Part of the UCC AMALI proposal (option 3) is based on an understanding of Global Learning Outcomes. However, these are not established, and are not likely to be approved by the Senate soon. In addition, the current strategic plan is waning, and there may be a need for a new International Strategic Plan. For all of these reasons, the idea and likelihood of recommending an indefinite postponement of any action on the AMALI proposal was discussed. This will be voted on at the next AAC meeting.

8. STAFF REPORT:

Proposed Diversity Requirement for Graduation (IDEAS) Planning. Rosenthal distributed a handout.

- Tuesday, March 20 (after return from break), with a separate reminder to chairs/directors on March 27, the UCC will send an email blast to invite faculty, AP staff, and students to Open Forums on April 3 and 4 from 3:00 to 4:00 p.m. in STV 401.
- Under the proposal, all undergraduates will be required to complete a course concentrating on issues related to Inclusion, Diversity, Equity, and Access in U.S. Society (IDEAS).
- The requirement would be fulfilled either as part of General Education, the student's major, or as an elective. No additional credit hours would be required.
- There will be a survey launched April 2 with cover email promoting the open forums. The survey will ask "would you support the requirement," "support with changes," or "not support the requirement," and will ask for comments.
- Learning outcomes will be provided on the survey.
- The survey will be open through April 16; UCC deliberation with recommendation for Senate's consideration will be in the fall.
- Thomas asked when the new requirement would start if approved. Rosenthal answered that it would be for the new catalog after approval. They will add a sentence saying "current students will not be affected."
- Ciani asked if students could "double-dip." Rosenthal said that they could because some courses, for instance, could be in the AMALI and General Education course list as well as be allowed for IDEAS.

9. MISCELLANEOUS:

Because of spring break, the UCC will not meet next week. There are currently no new program proposals to review.

10. ADJOURNED: Dustin moved to adjourn, Mikulec seconded; the meeting adjourned at 4:20 p.m. The next meeting will be called when needed.

11. INFORMATION: The University Curriculum Committee Executive Secretary approved the following:

Temporary Course:

PHY

189A14 INTRODUCTION TO MAKING

2 sem. hrs.

Design principles and fabrication skills necessary for the creation of useful devices of reasonable complexity, including those requiring embedded electronics. Lecture and lab. Materials charge optional.

New Courses:

COM

284 MEDIA SALES

3 sem. hrs.

Study of radio, television, newspaper and internet sales. Examination and practice of processes of planning and executing successful client proposals. Materials charge optional. Prerequisites: COM 111, 160.

MAT

355 GENERALIZED LINEAR MODELS AND PREDICTIVE MODELING

4 sem. hrs.

This course aims to introduce modern regression techniques and basics of statistical learning for large and complex data. Prerequisites: MAT 351 (MAT 353 is recommended).

POL (LGS)

210 INTRODUCTION TO COMMERCIAL TRANSACTIONS FOR PARALEGALS

3 sem. hrs.

Paralegal specialty course examining the legal concepts related to commercial transactions including: contracts, business organizations, and the Uniform Commercial Code. Prerequisite: LGS 201.

Revised Courses:

MAT

(Changed hours and revised description)

280 FINANCIAL MATHEMATICS

3 sem. hrs.

Interest rates. Accumulation function. Annuities. Amortization schedules. Bonds and other securities. Amortization and depreciation. Yield curve. **Duration, convexity, and**

immunization. Swaps. Prerequisites: Grade of B or better in MAT 145 and 146 or consent of the instructor.

(Revised description and title)

380 ACTUARIAL MODELS I
4 sem. hrs.

Survival models. Life insurance. Life annuities. Premiums. Reserves. Multiple lives. Estimation of models. Formerly *ACTUARIAL MODELING*. Prerequisites: Grade of B or better in MAT 280 and 350 or consent of the instructor; or graduate standing.

(Revised description)

381 ACTUARIAL MODELS II
4 sem. hrs.

Multiple states and stochastic processes models. Multiple decrements. Advanced survival and life contingencies models. Pension funding. Profit testing. Prerequisite: Grade of B or better in MAT 380 or consent of the instructor; or graduate standing.

(Revised description)

383 ACTUARIAL MODELS III
4 sem. hrs.

Derivative securities and their actuarial models. Arbitrage-free models. Elements of financial risk management. Quantitative models of financial markets. Formerly *ACTUARIAL MODELS II*. Prerequisites: Grade of B or better in MAT 280 and 350 or consent of the instructor; or graduate standing.

(Revised description)

384 ACTUARIAL MODELING
4 sem. hrs.

Severity and frequency models. Aggregate models. Risk measures. Insurance coverages and modifications. Credibility theory. Short term insurance pricing and reserving. Prerequisite: Grade of C or better in MAT 351 or consent of the instructor; or graduate standing.

Reactivated Course:

AGR

290 HORSE SCIENCE
3 sem. hrs.

Anatomy, physiology, nutrition, and genetics applied specifically to horses.

Editorial Requests (*for 2018-2019 Undergraduate Catalog*):

BSC

(Revised prerequisites)

145 HUMAN BIOLOGY **SMT**
3 sem. hrs.

Study of human biology in the context of science, technology, and culture, emphasizing technological advances in medicine, disease prevention, and public health. Not for credit major. Prerequisite: MAT 113, 118, 119, 120, 121, 130, 144, or 145.

BSC

(Revised prerequisites)

160 MICROBIOLOGY AND SOCIETY SMT
4 sem. hrs.

Introduction to microorganisms, their diversity, and their impact on society as agents of disease, in the environment, and in useful applications. Lecture and lab. Not for credit major. Not for credit if had BSC 260. Materials charge optional. Prerequisite: MAT 113, 118, 119, 120, 121, 130, 144, or 145.

(Revised prerequisites)

170 GENETICS AND SOCIETY SMT
3 sem. hrs.

Overview of human heredity in the context of biology, society, and culture; impact on treatment of diseases, reproductive technology, agriculture, aging/longevity, and forensics. Not for credit major. Prerequisite: MAT 113, 118, 119, 120, 121, 130, 144, or 145.

(Revised prerequisites)

220 LABORATORY IN MOLECULAR GENETICS AND CELL BIOLOGY
3 sem. hrs.

Learn and use modern genetic and molecular techniques to investigate current questions in genetics and cell biology. Lecture and lab. Materials charge optional. Prerequisites: BSC 196 or 197; a minimum of 24 hours completed.

ECO

(Revised prerequisites)

205 ECONOMIC DEVELOPMENT AND GROWTH
3 sem. hrs.

Historical and current determinants of economic development. Problems associated with generating and accelerating economic growth in less developed countries. Prerequisite: ECO 101 and 102, or 105.

(Revised prerequisites)

240 INTERMEDIATE MICROECONOMIC THEORY
3 sem. hrs.

Emphasis on topics regarding resource allocation, scarcity, and distribution of income; theory of consumer choice, theory of the firm, market structures, factor markets, distribution of income, welfare economics, and general equilibrium. Prerequisites: ECO 101 and 102, or 105; ECO 138 or MQM 100; and a grade of C or better in MAT 121 or 145.

IT

(Revised prerequisites)

272 COBOL AS A SECOND LANGUAGE
4 sem. hrs.

COBOL language for students with substantial programming experience in another language. Emphasizes structured problem-solving and programming. Prerequisites: Grade of C or better in IT 168. Major or minor only or consent of the school advisor.

(Revised description)

359 TOOLS AND TECHNIQUES IN PENETRATION TESTING
3 sem. hrs.

Penetration testing and offensive security software and methodologies, with emphasis on ethical hacking. Lecture and lab. Prerequisites: Grade of C or better in IT 250 and 276.