

**Approval Chart for Curriculum Changes**A = Approve    I= Information Item<sup>1</sup>    R= Advise & Respond<sup>2</sup>

Course Number \_\_\_\_\_ or Degree Plan(s) BS Mathematics, Actuarial Science Concentration (MASC)  
 State the requested change and reason. A memo may be attached if more space is necessary.

The Department of Mathematics proposes the following changes to this degree plan. Reasons are given in attached notes.

1. Replace IS 324 (Management Information Systems) with IT 220 (Introduction to Databases and Database Management Systems)

2. Remove FIN 419 (International Financial Markets) as a required course

3. Require FIN 411 (Principles of Investment) (currently a suggested course)

4. Require FIN 412 (Financial Theory and Practice) (currently a suggested course)

5. Remove the course suggestions from the Upper Level Business or Mathematics Selection

*no need to make  
retroactive to  
previous  
catalogs.*

Circle the number that corresponds to the requested change. Degree plan changes are on the second page.

|     |                                                                                                                   | COUNCIL <sup>3</sup> |                  |       |     |      |     |      |         |           |
|-----|-------------------------------------------------------------------------------------------------------------------|----------------------|------------------|-------|-----|------|-----|------|---------|-----------|
|     | Change to a Course                                                                                                | Dept./School         | College Academic | Deans | TEC | UGEC | UAC | GRAD | Provost | President |
| 1.  | Title (description unchanged)                                                                                     | A                    | A                | A     | I   |      |     |      | I       | I         |
| 2.  | Description (not affecting content)                                                                               | A                    | A                | A     | I   |      |     |      | I       | I         |
| 3.  | Content (substantive change)                                                                                      | A                    | A                | A     | I   |      |     |      | A       | A         |
| 4.  | Number of hours (lecture, lab, contact)                                                                           | A                    | A                | A     | A   |      |     |      | A       | A         |
| 5.  | Course number within the hundred                                                                                  | A                    | A                | I     | I   |      |     |      | I       | I         |
| 6.  | Course number beyond the hundred                                                                                  | A                    | A                | A     | A   |      |     |      | A       | A         |
| 7.  | Prerequisites                                                                                                     | A                    | A                | A     | I   |      |     |      | I       | I         |
| 8.  | Course fee(s)                                                                                                     | A                    | --               | A     | --  |      |     |      | A       | I         |
| 9.  | From U to G <i>or</i> G to U                                                                                      | A                    | A                | A     | A   |      |     |      | A       | A         |
| 10. | Cross list with another department: U or G level                                                                  | A                    | A                | A     | A   |      |     |      | A       | A         |
| 11. | Department of record                                                                                              | A                    | A                | A     | A   |      |     |      | A       | A         |
| 12. | Open or close a course                                                                                            | A                    | A                | A     | A   |      |     |      | A       | A         |
| 13. | New course — See website for application and process.<br>This change includes combining or splitting a course(s). | A                    | A                | A     | A   |      |     |      | A       | A         |

Note: When an academic unit does not have a council, the UGEC and/or UUAC will serve as its academic council, depending on the nature of the issue.

## Approval Chart for Curriculum Changes

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|     |                                                                                                             | COUNCIL <sup>3</sup> |                  |       |     |      |      |      | Provost | Faculty | President | Board of Trustees |
|-----|-------------------------------------------------------------------------------------------------------------|----------------------|------------------|-------|-----|------|------|------|---------|---------|-----------|-------------------|
|     | Change to a Degree Plan                                                                                     | Dept./School         | College Academic | Deans | TEC | UGEC | UUAC | GRAD |         |         |           |                   |
| 1.  | University Requirements — Change in approved course content <sup>6</sup>                                    | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |
| 2.  | University Requirements — Add or drop a required course from the University Requirements chart <sup>6</sup> | A                    | A                | A     | A   |      |      |      | A       | A       | A         | --                |
| 3.  | University Requirements — Add or drop a course from a menu within the University Requirements <sup>6</sup>  | A                    | --               | --    | A   |      |      |      | A       | --      | A         | --                |
| 4.  | University Requirements — Change hours within a menu on the University Requirements chart <sup>6</sup>      | A                    | A                | A     | A   |      |      |      | A       | A       | A         | --                |
|     |                                                                                                             |                      |                  |       |     |      |      |      |         |         |           |                   |
| 5.  | Major — Revision of major <sup>4,5</sup>                                                                    | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |
| 6.  | Major — Adopt or change admission requirements                                                              | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |
| 7.  | Major — Add <sup>4,5</sup>                                                                                  | A                    | A                | A     | A   |      |      |      | A       | A       | A         | I                 |
| 8.  | Major – Discontinue (proposed by the department or college)                                                 | A                    | A                | A     | A   |      |      |      | A       | A       | A         | I                 |
| 9.  | Major – Discontinue (proposed by the Provost)                                                               | See below.           |                  |       |     |      |      |      |         |         |           |                   |
|     |                                                                                                             |                      |                  |       |     |      |      |      |         |         |           |                   |
| 10. | GPA — Revise major or cumulative requirement                                                                | A                    | A                | A     | A   |      |      |      | A       | A       | A         | --                |
|     |                                                                                                             |                      |                  |       |     |      |      |      |         |         |           |                   |
| 11. | Minor — Revise course selection                                                                             | A                    | A                | A     | I   |      |      |      | I       | --      | I         | --                |
| 12. | Minor — Add                                                                                                 | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |
| 13. | Minor – Discontinue (proposed by the department or college)                                                 | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |
| 14. | Minor – Discontinue (proposed by the Provost)                                                               | See below.           |                  |       |     |      |      |      |         |         |           |                   |
|     |                                                                                                             |                      |                  |       |     |      |      |      |         |         |           |                   |
| 15. | Degree — Add                                                                                                | A                    | A                | A     | A   |      |      |      | A       | A       | A         | I                 |
| 16. | Degree – Discontinue (proposed by the department or college)                                                | A                    | A                | A     | A   |      |      |      | A       | A       | A         | I                 |
| 17. | Degree – Discontinue (proposed by the Provost)                                                              | See below.           |                  |       |     |      |      |      |         |         |           |                   |
| 18. | Any change to a graduate degree program                                                                     | A                    | A                | A     | A   |      |      |      | A       | --      | A         | --                |

| COUNCIL <sup>3</sup> |                                                                |         |            |      |     |      |          |         |           |                   |
|----------------------|----------------------------------------------------------------|---------|------------|------|-----|------|----------|---------|-----------|-------------------|
|                      | Provost-Proposed Change                                        | Provost | Department | Dean | TEC | UUAC | Graduate | Faculty | President | Board of Trustees |
| 1.                   | Major/Graduate Program – Discontinue (proposed by the Provost) | A       | R          | R    | A   |      |          | A       | A         | I                 |
| 2.                   | Minor – Discontinue (proposed by the Provost)                  | A       | R          | R    | A   |      |          | --      | A         | --                |
| 3.                   | Degree – Discontinue (proposed by the Provost)                 | A       | R          | R    | A   |      |          | A       | A         | I                 |

February 27, 2017

Notes for proposed changes to MASC major

1. Replacement of IS 324 with IT 220

We would like our students to have an introduction to relational databases and database queries, particularly SQL (Structured Query Language) scripting. This has been suggested by various members of our visiting committee, which includes actuaries and data analytics professionals in the health care industry. This degree plan already includes CS 120, which is the prerequisite for IT 220. Replacing the advanced course (IS 324) with a lower level course (IT 220) drops the advanced hours from 40 to 37, well above the minimum advanced hours requirement of 33.

2. Remove FIN 419 as a required course

This course was originally included in the degree to provide exposure to derivatives markets, which was a topic on the Society of Actuaries Financial Mathematics (FM) exam. These financial instruments are also introduced in FIN 411. As of Summer 2017, however, these topics are no longer part of the syllabus for the FM exam. This course may still be taken to fulfill the Business or Mathematics Selection requirement.

3. Require FIN 411

The current degree plan states "One upper level course (FIN 411 suggested)." We propose requiring FIN 411 instead. All MASC majors in recent years have opted to take FIN 411.

4. Require FIN 412

This is currently one of the suggested courses under the Upper-Level Business or Mathematics Selection. We would like to make it required. All MASC majors in recent years have opted to take it. Historically, students are introduced to the use of Microsoft Excel to perform complex financial computations. This is a skill that is essential to the actuarial profession.

5. Remove the course suggestions from the Upper Level Business or Mathematics Selection

This is a three-hour upper-level requirement. Two courses were offered as suggestions, one of which we propose making a requirement (FIN 412). We would simply like to remove the suggested courses language from this selection.

There is no change to the total hours required in the supplement to the major.

# MATHEMATICS – CONCENTRATION IN ACTUARIAL SCIENCE (BS)

## BS: MATHEMATICS DEGREE PLAN – CONCENTRATION IN ACTUARIAL SCIENCE (MATH) (MASC)

### UNIVERSITY REQUIREMENTS

Please see the University Requirements section of this catalog (page 39).

### MAJOR REQUIREMENTS

#### Mathematics

|                                                                             |                  |
|-----------------------------------------------------------------------------|------------------|
| MATH 185 Calculus I .....                                                   | (3) <sup>1</sup> |
| MATH 186 Calculus II .....                                                  | 3                |
| MATH 187 Calculus Computer Lab .....                                        | 1                |
| MATH 227 Discrete Mathematics .....                                         | 3                |
| MATH 286 Calculus III .....                                                 | 3                |
| MATH 377 Statistical Methods I .....                                        | 3                |
| MATH 397 Mathematics Seminar .....                                          | 2                |
| MATH 445 Theory of Interest .....                                           | 3                |
| MATH 477 Statistical Methods II .....                                       | 3                |
| MATH 478 Mathematical Statistics .....                                      | 3                |
| MATH 497 Mathematics Capstone (capstone and writing-intensive course) ..... | 2                |

#### Mathematics Selections

Choose 2 from the following: .....6

|                                          |
|------------------------------------------|
| MATH 325 Linear Algebra                  |
| MATH 361 Ordinary Differential Equations |
| MATH 381 Analysis I                      |

#### Advanced Mathematics Selection

(excluding 309, 311, 410, and 412) .....3

**TOTAL** .....35

<sup>1</sup>Hours (in parentheses) may also fulfill university requirements and are not included in total major hours

### SUPPLEMENT FOR MAJOR

#### Computer Science

|                            |   |
|----------------------------|---|
| CS 120 Programming I ..... | 3 |
|----------------------------|---|

#### Business Administration

|                                                                        |                  |
|------------------------------------------------------------------------|------------------|
| ACCT 210 Financial Accounting .....                                    | 3                |
| ACCT 211 Managerial Accounting .....                                   | 3                |
| ECON 260 Principles of Macroeconomics .....                            | (3) <sup>1</sup> |
| ECON 261 Principles of Microeconomics .....                            | 3                |
| FIN 310 Financial Management .....                                     | 3                |
| FIN 411 Principles of Investment .....                                 | 3                |
| FIN 412 Financial Theory and Practice .....                            | 3                |
| <del>FIN 419 International Financial Markets</del> .....               | <del>3</del>     |
| <del>IS 324 Management Information Systems</del> .....                 | <del>3</del>     |
| IT 220 Introduction to Databases and Database Management Systems ..... | 3                |

~~One upper-level course (FIN 411 suggested)~~ .....3

#### Business or Mathematics Selection

Any upper-level business or mathematics course

~~(ECON 463 Managerial Economics or FIN 412 Financial Theory and Practice suggested)~~ .....3

**TOTAL** .....27

<sup>1</sup>Hours (in parentheses) may also fulfill university requirements and are not included in total major hours

### ELECTIVES

Minimum ..... 10

**TOTAL MAJOR HOURS** .....72

### OTHER GRADUATION REQUIREMENTS

Minimum GPA in major requirements and supplement .....2.50

Minimum GPA for graduation .....2.00

Minimum advanced hours .....33

Minimum total hours .....128

*Courses numbered 0\*\* do not count in minimum hours required for degree.*

David Hendricks <[hendricksd@acu.edu](mailto:hendricksd@acu.edu)>

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## Fwd: Catalog changes for Mathematics

1 message

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Mark W. Riggs <[mark.riggs@acu.edu](mailto:mark.riggs@acu.edu)>  
To: David Hendricks <[hendricksd@acu.edu](mailto:hendricksd@acu.edu)>

Fri, Mar 3, 2017 at 8:56 AM

**Dr. Mark W. Riggs**, *Professor and Assistant Chair*  
Department of Mathematics  
Abilene Christian University  
215 Onstead Science Center | ACU Box 28012 | Abilene, Texas 79699-8012  
Tel: 325-674-2551 | Fax: 325-674-6753

----- Forwarded message -----

From: John Homer <[jdh08a@acu.edu](mailto:jdh08a@acu.edu)>  
Date: Thu, Mar 2, 2017 at 12:38 PM  
Subject: Re: Catalog changes for Mathematics  
To: "Mark W. Riggs" <[mark.riggs@acu.edu](mailto:mark.riggs@acu.edu)>

Mark,

The School of Information Technology and Computing supports this proposed change for the MASC degree plan. We can accomodate (with minimal impact) this level of increase in the number of students taking the IT 220 course.

Thanks for the heads-up regarding this change,

John Homer  
Director, School of Information Technology & Computing  
[jdh08a@acu.edu](mailto:jdh08a@acu.edu)

On Mar 2, 2017, at 10:13 AM, Mark W. Riggs <[mark.riggs@acu.edu](mailto:mark.riggs@acu.edu)> wrote:

John:

We are sending a proposal to councils that change some of the courses our actuarial science majors take (BS in Mathematics, Concentration in Actuarial Science - MASC). In your area, they currently take CS 120 and IS 324 (MIS). Our proposal is to change the IS 324 requirement to IT 220 (Introduction to Databases and Database Management Systems). This is coming in part from our visiting committee, to give graduates an introduction to relational databases and SQL. We are keeping the CS 120 requirement, which serves as the prerequisite to IT 220.

We currently have 15 majors, across the freshman to senior spectrum, all of whom, of course, fall under the old catalogs (IS 324 requirement). We have held pretty steady at 3 to 4 new majors per year, so I would think that this should not have a big impact on the enrollment in IT 220 - likely no impact at all for a couple of years. But, I do not know what the usual enrollment is in this course, so I want to run this past you.

If you think that IT 220 would be able to handle this slight increase, would you mind sending me a memo (email

David Hendricks <[hendricksd@acu.edu](mailto:hendricksd@acu.edu)>

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**Fwd: FIN 411 and FIN 412**

1 message

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**Mark W. Riggs** <[mark.riggs@acu.edu](mailto:mark.riggs@acu.edu)>  
To: David Hendricks <[hendricksd@acu.edu](mailto:hendricksd@acu.edu)>

Fri, Mar 3, 2017 at 8:57 AM

**Dr. Mark W. Riggs**, *Professor and Assistant Chair*  
Department of Mathematics  
Abilene Christian University  
215 Onstead Science Center | ACU Box 28012 | Abilene, Texas 79699-8012  
Tel: 325-674-2551 | Fax: 325-674-6753

----- Forwarded message -----

From: **John Neill III** <[jdn00b@acu.edu](mailto:jdn00b@acu.edu)>  
Date: Thu, Mar 2, 2017 at 12:20 PM  
Subject: FIN 411 and FIN 412  
To: Mark Riggs <[mark.riggs@acu.edu](mailto:mark.riggs@acu.edu)>

Mark,  
Thanks for letting me know about the proposed changes in the degree plan for the Bachelor of Science in Mathematics (Concentration in Actuarial Science) degree. The accounting and finance department supports the proposed change to make FIN 411 and FIN 412 required for the degree rather than simply suggested for the degree. We have ample capacity in those classes and can easily accommodate your students. It is always good to have high quality students in class, and actuarial science majors are typically outstanding students.

Thanks,  
John Neill  
Chair, Department of Accounting and Finance  
ACU