

# Approval Chart for Curriculum Changes

A = Approve    I= Information Item<sup>1</sup>    R= Advise & Respond<sup>2</sup>

FEB 09 2016  
Ashley  
Office of the Provost

Course Number MATH 418 or Degree Plan(s) \_\_\_\_\_

State the requested change and reason. A memo may be attached if more space is necessary.

See attached.

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.

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|     |                                                                                                             | COUNCIL <sup>3</sup> |                  |       |     |      |      |      |         |         |           |                   |
|-----|-------------------------------------------------------------------------------------------------------------|----------------------|------------------|-------|-----|------|------|------|---------|---------|-----------|-------------------|
|     | Change to a Degree Plan                                                                                     | Dept./School         | College Academic | Deans | TEC | UGEC | UUAC | GRAD | Provost | Faculty | President | Board of Trustees |
| 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   |      |      |      | 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                 |

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| COUNCIL <sup>3</sup> |                                                                                                                              |              |                  |       |       |      |      |         |           |
|----------------------|------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|-------|-------|------|------|---------|-----------|
|                      | Change to the Catalog Information                                                                                            | Dept./School | College Academic | Deans | UGECE | UUAC | GRAD | Provost | President |
| 1.                   | General requirements for graduation including course requirements that are common to all majors for all degrees <sup>7</sup> | --           | --               | --    |       | A    |      | A       | A         |
| 2.                   | Admission requirements                                                                                                       | --           | --               | --    |       | A    |      | A       | A         |
| 3.                   | Policies governing academic probation and suspension                                                                         | --           | --               | --    |       | A    |      | A       | A         |
| 4.                   | Requirements for graduating with honors                                                                                      | --           | --               | --    |       | A    |      | A       | A         |
| 5.                   | Other academic policy changes                                                                                                | --           | --               | --    |       | A    |      | A       | A         |

<sup>1</sup> Councils may request additional information about “Information” items. These items are approved as “Consent Agenda.”

<sup>2</sup> The Dean and Department should respond to the Provost’s recommendation to close a program in writing. Advise & Respond (R) requires that the voting body should receive the written responses at least one week prior to the vote.

<sup>3</sup> All courses that meet University Requirements for general education must go through UGEC. Courses or degrees offered only to students seeking teacher certification must go through the Teacher Education Council. All undergraduate changes must go before the UUAC. All graduate degree plan changes must go through the Graduate Council.

<sup>4</sup> A minimum of 30 hours is required for a major. A maximum is specified for each degree (e.g., BA, BS). The university minimum for elective hours is 6, unless the requirements of external accrediting bodies make it impossible.

<sup>5</sup> Program or course changes that apply to any major that includes Teacher Certification will be reviewed by the college, the Teacher Education Council (TEC), and then the UUAC.

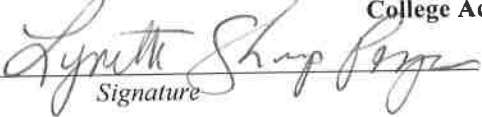
<sup>6</sup> Courses that satisfy ACU’s University Requirements (General Education) will normally have lower-level numbering, be free of prerequisites and co-requisites, appeal to more than one or two majors, and “not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession” (SACS 2.7.3). Departments may request exceptions to the first three criteria.

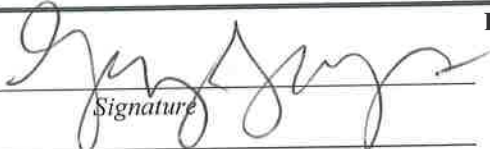
<sup>7</sup> The UUAC approved the clarification that “general requirements for graduation” means the enumerated items in the “General Requirements for Bachelor’s Degrees” section of the catalog.

Revised 10-16-13

## Curriculum/Catalog Changes Signature Page

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Department/School Chair(s)                                                        |               |
|  | 01/25/2016    |
| Signature                                                                         | Approval date |
| Signature                                                                         | Approval date |

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| College Academic Council(s)                                                       |               |
|  | 2-5-16        |
| Signature                                                                         | Approval date |
| Signature                                                                         | Approval date |

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Dean(s)                                                                           |               |
|  | 2/8/16        |
| Signature                                                                         | Approval date |
| Signature                                                                         | Approval date |

|                                                                                   |               |
|-----------------------------------------------------------------------------------|---------------|
| Teacher Education Council                                                         |               |
|  | 2-15/16       |
| Chair's signature                                                                 | Approval date |

|                           |               |
|---------------------------|---------------|
| General Education Council |               |
| Chair's signature         | Approval date |

|                                |               |
|--------------------------------|---------------|
| Undergraduate Academic Council |               |
| Chair's signature              | Approval date |

|                   |               |
|-------------------|---------------|
| Graduate Council  |               |
| Chair's signature | Approval date |

|           |               |
|-----------|---------------|
| Provost   |               |
| Signature | Approval date |

|                         |               |
|-------------------------|---------------|
| Faculty                 |               |
| Chair of faculty senate | Approval date |

|           |               |
|-----------|---------------|
| President |               |
| Signature | Approval date |

**Application for a New Course v10.5**

|                      |          |
|----------------------|----------|
| <b>Course ID</b>     | MATH 418 |
| <b>Date APPROVED</b> |          |
| <b>Date DENIED</b>   |          |

**I. Systems and Catalog Information** Complete each item.

|     |                                                      |                                                    |
|-----|------------------------------------------------------|----------------------------------------------------|
| 1   | Course Developer                                     | Dr. Connie Yarema                                  |
| 2   | Course Teacher                                       | Dr. Connie Yarema                                  |
| 3   | Course Title                                         | Professional Development Experience in Mathematics |
| 4   | Course Abbreviation (if title is over 30 characters) | PD Experience in Math                              |
| 5   | College                                              | College of Arts and Sciences                       |
| 6   | Department                                           | Mathematics                                        |
| 7   | Number of Credit Hours                               | 1                                                  |
| 8   | Is the course Fixed Credit or Variable Credit?       | Fixed                                              |
| 9   | Is the course repeatable?                            | No                                                 |
| 10  | Maximum number of times course may be repeated       | 0                                                  |
| 11  | Maximum number of hours credit                       | 1                                                  |
| 12  | Explanation for variable credit                      | N/A                                                |
| 13a | Course contact hours - LEC                           | N/A                                                |
| 13b | Course contact hours - Lab                           | 2                                                  |
| 13c | Course contact hours - Practicum                     | N/A                                                |

|     |                                                                             |                                                                                                                                                                                                                                                                                                                                                                                        |
|-----|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13d | Course contact hours - Seminar                                              | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13e | Course contact hours - Studio                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13f | Course contact hours - Online                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13g | Course contact hours - Colloquium                                           | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13h | Course contact hours – Field Experience                                     | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13j | Course contact hours - Internship                                           | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13k | Course contact hours - Research                                             | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13m | Course contact hours - Workshop                                             | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 13n | Course contact hours – Other (specify)                                      | N/A                                                                                                                                                                                                                                                                                                                                                                                    |
| 14  | Instructor Workload                                                         | 2                                                                                                                                                                                                                                                                                                                                                                                      |
| 15  | Grade Mode (check all appropriate):                                         | <input checked="" type="checkbox"/> Standard<br><input type="checkbox"/> Credit/No Credit (undergrad only)                                                                                                                                                                                                                                                                             |
| 16  | Maximum Enrollment                                                          | 12                                                                                                                                                                                                                                                                                                                                                                                     |
| 17  | <b>Catalog Description</b><br>(50 words or less)                            | Development of teacher knowledge in the areas of knowledge of specialized mathematical content, mathematical curriculum, teaching mathematics, and student thinking about mathematics through a collaborative professional development experience. Topics will correspond to mathematical practices as specified by national and state standards for teaching grades 7–12 mathematics. |
| 18  | List any prerequisites (course/s, test scores, class standing, major, etc.) | This course is designed for students seeking licensure to teach secondary mathematics, grades 7–12. ( <i>For MATT majors only</i> ). To enroll in this course, MATH 309 or MATH 311 must be successfully completed along with valid admission status in ACU's Teacher Education Program.                                                                                               |
| 19  | List any co-requisites                                                      | None                                                                                                                                                                                                                                                                                                                                                                                   |

|     |                                                                                                                                                                                                 |                                                           |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| 19  | List any co-requisites                                                                                                                                                                          | None                                                      |
| 20  | If the course is cross listed, specify the Course ID(s) MUST have signature in Section V off all Department Chairs                                                                              | N/A                                                       |
| 21  | Does this course have any special student costs? Yes/No<br><i>Attach a <u>completed</u> "Request to Add or Change Course Fees" form. Describe in section IV-F.</i>                              | N/A                                                       |
| 22a | How often will it be offered?<br><b>Fall</b>                                                                                                                                                    | 1                                                         |
| 22b | How often will it be offered?<br><b>Spring</b>                                                                                                                                                  | 0                                                         |
| 22c | How often will it be offered?<br><b>Summer</b>                                                                                                                                                  | 0                                                         |
| 23  | Frequency? All, odd, or even years?                                                                                                                                                             | Even years                                                |
| 24  | First semester this course will be offered<br><i>New courses may not be taught under their approved course ID until they appear in the catalog, therefore, no earlier than the coming fall.</i> | Fall 2016                                                 |
| 25  | List course/s that should be deleted, include the last semester for course/s being deleted<br><i>A course cannot be deleted when it is a requirement in a degree plan in any department.</i>    | N/A                                                       |
| 26  | Is this course required for a degree/s? Yes/No<br><i>If "Yes," attach a revised degree plan(s) reflecting the placement of the new course.</i>                                                  | Yes<br><br>ACU Catalog 2015-16 page 79 - excerpt included |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                                                                                                                                                                                                                                                                                                                                                                      | <div> <b>BS: MATHEMATICS (ONE-FIELD TEACHER CERTIFICATION) DEGREE PLAN (MATT)</b> </div> <div> <b>UNIVERSITY REQUIREMENTS</b><br/> Please see the University Requirements section of this catalog (page 37). </div> <div> <b>MAJOR REQUIREMENTS</b><br/> <b>Mathematics</b><br/> MATH 185 Calculus I ..... (3)<sup>1</sup><br/> MATH 186 Calculus II ..... 3<br/> MATH 187 Calculus Computer Lab ..... 1<br/> MATH 218 Numerical Problems in Mathematics (lab) ..... 1<br/> MATH 227 Discrete Mathematics ..... 3<br/> MATH 247 Number Concepts for Grades 7-12 Teachers ..... 3<br/> MATH 286 Calculus III ..... 3<br/> MATH 309 Algebraic Concepts for Teachers I ..... 3<br/> MATH 311 Geometric Concepts for Teachers I ..... 3<br/> MATH 325 Linear Algebra ..... 3<br/> MATH 334 Linear Programming or MATH 361 Ordinary<br/> Differential Equations ..... 3<br/> MATH 351 Abstract Algebra I ..... 3<br/> MATH 377 Statistical Methods I ..... 3<br/> MATH 381 Analysis I or MATH 477 Statistical Methods II ..... 3<br/> MATH 397 Mathematics Seminar ..... 2<br/> MATH 410 Algebraic Concepts for Teachers II ..... 3<br/> MATH 412 Geometric Concepts for Teachers II ..... 3<br/> MATH 418 Professional Development Experience in<br/> Mathematics (lab) ..... 1<br/> MATH 497 Mathematics Capstone (capstone and writing-<br/> intensive course) ..... 2<br/> <b>TOTAL</b> ..... <b>46</b> </div> |
| 27 | Should the addition of this course be retroactively applied to the degree plan it supports?<br>Yes/no and explain                                                                                                                                                                                                                                                                                                    | Yes<br>Several MATT majors enrolled under the 2015-16 program as outlined in ACU's Catalog.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 28 | Has this course been offered as a Special Topics course?<br>Yes/No<br><i>If "Yes," specify the Course ID and enrollment for each term it was taught.</i><br><i>(Note: New courses are NOT required to be taught as Special Topics courses prior to being approved. However, courses may be taught once as Special Topics before it is proposed. See the Course Descriptions section of the Catalog for details.)</i> | It was an attached lab to MATH 410 that had the Course ID of MATH 440 when the content of MATH 410 and the attached lab was taught in Spring 2010 (8 students), Spring 2011 (6 students), Spring 2012 (10 students), Spring 2013 (3 students), and Spring 2014 (5 students).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 29 | List any courses in which content overlaps the proposed course. (Course ID and Name)<br>Attach statement from instructor/dept chair of existing course justifying the new offering in Section IV-D.                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## II. Curriculum

|   |                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Degree Plan</b> Explanation of how this course affects degree requirements.                                     | It does not add any hours as the course is already listed on an approved degree plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2 | <b>Justification</b> State the justification for adding this course to the current curriculum. Represent the need. | <p>The course is needed to satisfy requirements on a current degree plan. The need arose through the work of the Department of Mathematics faculty with in-service teachers and with pre-service teachers during their student teaching experience. Although pre-service teachers possess mathematical knowledge at high levels, they have difficulties connecting their knowledge to teaching grades 7-12 mathematics. In their undergraduate training, they do not have opportunities to connect and develop their knowledge of specialized mathematics content to the context of teaching mathematics, mathematical standards and curriculum, and students think about mathematics outside of student teaching. Development of teacher knowledge occurs during professional development and should begin prior to student teaching. In addition, ACU's Department of Teacher Education has no faculty with secondary mathematics teaching experience. Organizations on the national level such as the Mathematical Association of America advocate in the <i>Mathematical Education of Teachers II</i> document for departments of mathematics to be creative in such cases and take the lead in providing professional development to mathematics teachers. Therefore, ACU's Department of Mathematics with faculty who have experiences in providing professional development to in-service teachers are proposing this course as a means to provide a collaborative professional development experience in mathematics to pre-service teachers. This collaboration includes ACU's Department of Teacher Education, consultants from ESC Region 14, and/or mathematics specialists from Abilene ISD or other schools in the surrounding area.</p> |

### III. Course Design

#### 1. Audience and Course Goal

|   |                                                                |                                                                                                                                                                                                                                                                                                                                                                                          |
|---|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Describe the intended audience, including prerequisite skills. | The intended audience is students seeking licensure to teach secondary mathematics, grades 7 - 12. Prerequisite skills include successful completion of MATH 309 Algebraic Concepts I or MATH 311 Geometric Concepts I, which are courses that address specialized content knowledge for teachers. In addition, a valid admission status in ACU's Teacher Education Program is required. |
| 2 | State the overarching course goal(s) in performance terms.     | The goal of the lab is for pre-service secondary mathematics teachers through a professional experience to formulate knowledge needed to be an effective teacher of secondary mathematics.                                                                                                                                                                                               |

#### 2. Competencies and Measurements

|   | Competency                                                                                                                                                                                                                     | Measurement                                              |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| 1 | The pre-service secondary mathematics teacher designs a problem solving-research lesson that combines specialized content knowledge, knowledge of mathematics curriculum, and knowledge of student thinking about mathematics. | Plan to Guide Learning                                   |
| 2 | The pre-service secondary mathematics teacher teaches a problem solving lesson, gathers data on student learning, and analyzes the effect of teaching their problem-solving lesson on student thinking.                        | Observation<br>Data Collection<br>Plan to Guide Learning |

|   |                                                                                                                                                                                         |                                                            |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| 3 | The pre-service secondary mathematics teacher compares this professional development approach to traditional professional development in the U.S. and reflects on own cultural scripts. | Plan to Guide Learning<br>Reflection Writing<br>Assignment |
| 4 |                                                                                                                                                                                         |                                                            |
| 5 |                                                                                                                                                                                         |                                                            |
| 6 |                                                                                                                                                                                         |                                                            |
| 7 |                                                                                                                                                                                         |                                                            |
| 8 |                                                                                                                                                                                         |                                                            |
| 9 |                                                                                                                                                                                         |                                                            |

### 3. Text and Resources

1. Give the full publication information of the textbook/s and other required resources and outside readings.

Materials Package developed by the instructor, available through the Campus Store  
Electronic version of a Plan to Guide Learning based on the format of Japanese educators that was developed by the instructor

2. For **combined undergraduate/graduate** courses, make two lists:
- full publication information; label **Undergraduate**.
  - full publication information; label **Graduate**. Indicate number of pages required.

## IV. Supporting Documentation

*Supporting documents must accompany proposal prior to preliminary approval by chair and dean.*

|   |                                                                                                                                                                                                                                       |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <b>Library</b> — Submit new course application and syllabus to the Dean of the Library. Consult with the director and establish a deadline for completion of the library report. <b>Attach</b> the signed copy of the Library report. |
| 2 | <b>Instructional Design</b> — The application and syllabus must be reviewed by the Adams Center. <b>Attach</b> a copy of the Adams Center Review Letter.                                                                              |

|   |                                                                                                                                                                                                                                                                                                                                         |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | <b>Content Overlap</b> — Include one document for each course you listed in Section I-1.<br><b>Attach</b> statement from instructor/dept chair of existing course justifying the new offering.                                                                                                                                          |
| 4 | <b>Departmental Resources</b> — List the resources that support the course and are available only through the department, if applicable. <b>Attach</b> the list of the holdings and the location/s.                                                                                                                                     |
| 5 | <b>Resources</b> — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.).<br><b>Attach</b> a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.                |
| 6 | <b>Expenses</b> — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). <b>Attach</b> a complete list of all items, the estimated cost of each and the source of the funds. |
| 7 | <b>Justification</b> — <b>Attach</b> all documents referred to in Section II-2                                                                                                                                                                                                                                                          |
| 8 | Syllabus — <b>Attach</b> the syllabus for the course based upon the anticipated first-semester offering.                                                                                                                                                                                                                                |
| 9 | Provide documentation for all additional attachments here                                                                                                                                                                                                                                                                               |

## V. Preliminary Approvals

All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

Course Number and Name \_\_\_\_MATH 418 Professional Development Experience in Mathematics\_\_\_\_

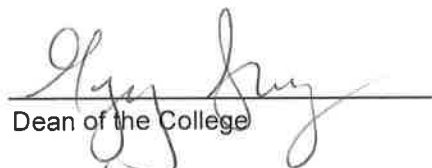
### Primary Department



Department Chair

01/25/2016

Date



Dean of the College

2/5/16

Date

**Cross-listing Department**    *Add more lines if multiple departments are cross-listing -- No cross listings*

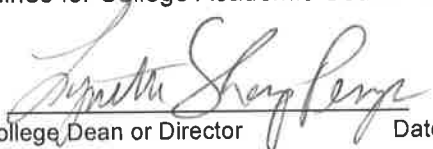
## VI. Actions *Place all actions on one page.*

Course ID: MATH 418

Course Title: Professional Development Experience in Mathematics

### 1. College Academic Council: (for all courses)

Note: Insert additional lines for College Academic Council action for each college involved in cross-listed courses.

Approved X Denied           2-5-16  
College Dean or Director Date

Approved          Denied                                                                             
College Dean or Director Date

### 2. Graduate Council: (for graduate level courses)

Approved          Denied                                                                             
Dean of Graduate School Date

### 3. Teacher Education Council: (when applicable)

Approved ✓ Denied           2-5-16  
TEC Chair Date

### 4. University General Education Council: (when applicable)

Approved          Denied                                                                             
Provost's designee Date

### 5. University Undergraduate Academic Council: (undergraduate level courses)

Approved          Denied                                                                             
Vice Provost Date

### 6. Academic Provost: (for all courses)

Approved          Denied                                                                             
Provost Date

### 7. President of the University: (for all courses)

Approved          Denied                                                                             
President Date

Attach notes, comments, or conditions from appropriate councils:

***The mission of Abilene Christian University is to educate students for Christian service and leadership throughout the world.***

**Abilene Christian University  
Professional Development Experience in Mathematics  
MATH 418, Fall 2016  
Course Policies and Syllabus**

|                                                                  |                                                   |
|------------------------------------------------------------------|---------------------------------------------------|
| <b>Instructor:</b> Dr. Connie Yarema<br>Professor of Mathematics | <b>Course:</b> MATH 418 - Lab, 1 hours credit     |
| <b>Office:</b> OSC #225      ACU Box: 28012                      | <b>Class times and locations:</b><br>Section L1 - |
| <b>Phone:</b> 674-2160                                           | <b>Final:</b><br>Section L1 –                     |
| <b>Email:</b> yaremac@acu.edu                                    |                                                   |
| <b>Office Hours:</b>                                             | <b>In Class:</b>                                  |
| M                                                                |                                                   |
| T                                                                |                                                   |
| W                                                                |                                                   |
| R                                                                |                                                   |
| Other Times by Appointment                                       |                                                   |

**Required Materials:** MATH 418 Lab Materials Package

**Required Technology:** laptop/computer/iPad/iDevice, access to Internet.

## **Catalog Information**

**Course Description:** Development of teacher knowledge in the areas of knowledge of specialized mathematical content, mathematical curriculum, teaching mathematics, and student thinking about mathematics through a collaborative professional development experience. Topics will correspond to mathematical practices as specified by national and state standards for teaching grades 7–12 mathematics..

**Primary Audience and Prerequisite:** This course is designed for students seeking licensure to teach secondary mathematics, grades 7–12. (*For MATT majors only*). To enroll in this course, MATH 309 or MATH 311 must be successfully completed along with valid admission status in ACU's Teacher Education Program.

## **Course Information**

**Course Goal:** The goal of the lab is for pre-service secondary mathematics teachers through a professional experience to formulate knowledge needed to be an effective teacher of secondary mathematics.

**Overview of Content:** This lab will primarily focus on inquiry-based instruction through the development, teaching, observation, and discussion of a problem solving research lesson based on the Texas Essential Knowledge and Skills standards for secondary mathematics. The lab consists of three major components: 1) planning a problem solving research lesson focused on student thinking; 2) teaching, observing, and discussing what occurred during the teaching of the lesson in terms of student learning; and 3) writing a final report about what was learned. In particular, the lab

offers a collaborative professional development experience supported by research that develops best practices for teaching secondary mathematics.

**Description of General Class Format and Conduct of Course:** The purpose of this lab is for pre-service mathematics teachers to develop skills in facilitating student discourse in the classroom with the ultimate outcome of using students' discourse to enhance their understanding of mathematics. To expedite the lab's purpose, a professional development model used extensively in Japan called Lesson Study will serve as the framework to practice inquiry-based instruction and to research student thinking about mathematics. In addition, the lab is designed to develop teacher knowledge of specialized mathematical content, instructional materials, teaching mathematics, and student learning of mathematics that impact the facilitation of student discourse. The format of the class is collaborative with small group and large group discussions. Small group discussions occur during the planning and developing of a problem-solving lesson. Pre-service secondary mathematics teachers will practice inquiry-based instruction by facilitating and teaching the problem-solving lesson they researched and designed. In addition, they will develop skills in gathering data about student learning while observing the teaching of their problem-solving lesson. Large group discussions with in-service secondary mathematics teachers, faculty from the Department of Mathematics, and faculty from the Department of Teacher Education about putting into practice what was learned in university courses will help develop a sense of community. Some of the lab will be conducted on-site in schools in the Region 14 servicing area. The teachings of the lesson are projected to occur in early November.

**Course Competency:** The course competency is based on the TE<sup>x</sup>ES, Texas Examinations of Educator Standards for teaching mathematics to students in grades 7-12.

| Course Competency                                                                                                                                                                                                                 | Measurement Instrument                                                                                                                                            | Measurement Standards (Rubric)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. The pre-service secondary mathematics teacher designs a problem solving-research lesson that combines specialized content knowledge, knowledge of mathematics curriculum, and knowledge of student thinking about mathematics. | <ul style="list-style-type: none"> <li>• Plan to Guide Learning</li> <li>• Rationale for Study</li> <li>• Unit Plan and Development of Research Lesson</li> </ul> | <ul style="list-style-type: none"> <li>• Chooses state standards in mathematics in which student performance is strong and weak</li> <li>• Analyzes alignment of standards, textbooks, and research results to conjecture why students exhibit weaknesses in mathematical performance</li> <li>• Writes a rationale for studying an area of mathematics in which students exhibit weaknesses</li> <li>• Develops a problem solving lesson that addresses chosen student weakness in mathematics and critiques it for areas that could contribute to students' misunderstandings</li> <li>• Anticipates student responses to the mathematics problem</li> </ul> |
| 2. The pre-service secondary mathematics teacher teaches a problem solving lesson, gathers data on student learning, and analyzes the effect of teaching their problem-solving lesson on student thinking.                        | <ul style="list-style-type: none"> <li>• Plan to Guide Learning</li> <li>• Teaching, Observing, Discussing, Revising Lesson</li> </ul>                            | <ul style="list-style-type: none"> <li>• Recognizes students' misconceptions.</li> <li>• Notes misconceptions.</li> <li>• Categorizes misconceptions.</li> <li>• Formulate reasons for students' misconceptions.</li> <li>• Critiques reasoning of others' reasons.</li> <li>• Constructs connections among mathematical concepts studied in higher education and how students approached problems.</li> </ul>                                                                                                                                                                                                                                                 |

|                                                                                                                                                                                            |                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. The pre-service secondary mathematics teacher compares this professional development approach to traditional professional development in the U.S. and reflects on own cultural scripts. | <ul style="list-style-type: none"> <li>• Final Lesson Study Plan to Guide Learning</li> <li>• Individual Reflection Paper</li> </ul> | <ul style="list-style-type: none"> <li>• Describes their professional development in lab to traditional professional development settings in U.S. and contrasts the two experiences.</li> <li>• Summarizes their personal view of what teaching mathematics was (cultural scripts) before this professional development and assesses how their views were challenged by the experience.</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Evaluation Methods:** A Plan to Guide Learning with a reflective writing, and daily assignments associated with the compilation of the Plan to Guide Learning will be used as assessments of the stated competency.

**Grading Criteria:** Canvas, a class blog or similar format will be used to house the lab activities related to Lesson Study. A rubric will be provided for the writing of the Plan to Guide Learning final report and for the individual reflection on this professional development experience.

**Grade Categories and Grading Scale:** The categories and percentages that will be used to calculate the lab grade are listed below:

| Grade Category                                   | Percentage | Course Average | Course Grade |
|--------------------------------------------------|------------|----------------|--------------|
| Rationale for Study                              | 15%        | 90–100         | A            |
| Unit Plan and Development of Research Lesson     | 15%        | 80–89          | B            |
| Teaching, Observing, Discussing, Revising Lesson | 15%        | 70–79          | C            |
| Final Lesson Study Plan to Guide Learning (PGL)  | 25%        | 60–69          | D            |
| Individual Reflection Paper                      | 30%        | 0-59           | F            |

**Rationale for Study:** The rationale for the study is a written account of your investigation of data and curriculum that points to the student-learning topic that you want to study. A well developed rationale includes many of the following: the findings from your analysis of student data, your experiences in the classroom, research about student learning of the topic, suggestions from researchers or practitioners on how to develop the topic, findings from your analysis of textbooks, curriculum, and standards. This is the first section of the Plan to Guide Learning (PGL).

**Unit and Development of Well-Researched Lesson:** A well-researched lesson is based on the rationale for your study. A *carefully thought out* research lesson

- Supports the goals of your school – even social type goals.
- Describes the presentation of the problem in the lesson so that students clearly understand what is being asked.
- Includes teachers’ anticipated student solution methods to the problem.
- Supports facilitation of student discussions during problem solving by providing possible questions to help them clarify their thinking.
- Outlines how student solution methods are to be organized on the board scaffolding the methods to the “efficient” method students are to learn.

- Includes questions to ask students during whole class discussion that also serves as scaffolding student thinking to the learning of the content.
  - Details how the content to be learned will be taught by the teacher based on students' problem solving approaches.
  - Notes time needed to teach the lesson using inquiry-based instruction and organizes lesson to account for all components of the lesson (presentation of problem, facilitation of student discourse while they work on the problem, student presentations and whole class discussion about student solution methods, and **teaching of content based on student work**).
- This is the second section of the PGL.

**Teaching Lesson/Observing/Discussing/Revising Lesson:** Inquiry-based instruction using the format of Lesson Study includes:

- Student discourse in small groups and as a class. The teacher is a facilitator.
  - Teaching the content by the teacher so that student thinking can be clarified. The research lesson, for the purposes of the project, is a one-time practice in inquiry-based instruction. Therefore, make sure you teach the content. Consider this component as you organized your lesson. You can cut down student problem solving time so that you can teach the content that is the topic of the lesson.
  - Data on students' thinking will be collected by outside observers. Observers watch students, not teachers. However, teachers can affect students' thinking in a number of ways while they are teaching a lesson.
  - When the whole group convenes for the post-lesson discussion, the moderator will allow time for the teacher of the lesson to make a statement, followed by the Lesson Study group. Then questions to the teacher and group will be posed. Someone from the Department of Mathematics will make a final comment focusing on the content in the lesson or on student thinking about the content. Someone from the Teacher Education Department may also make a final comment about inquiry-based instruction.
  - Based on the data collection and discussion, the research will be revised for the next teaching.
- This is the third section of the PGL.

**Final Study Plan to Guide Learning (PGL):** A rubric will be used to assess the group's final Plan to Guide Learning. This PGL will include the final revision of the research lesson and a section that states the findings about student thinking of the topic based on data gathered in classrooms and a discussion that relates teacher practices to the findings. These can be suggestions to do or to avoid. In addition, a group reflection stating what was learned from this type of professional development and implications to them as future secondary mathematics teachers.

**Peer Evaluation on Contribution to the PGL:** Since this course is very collaborative, each pre-service secondary mathematics teacher will complete a peer evaluation assessing each group member's contribution and participation in the development, writing, and revision to the PGL. Therefore, each person's final PGL may have a different grade based on the following:

- 75% from the PGL average + 25% from the Peer Evaluation

**Final: Time and Date.** School policy prohibits giving exams early.

**Attendance, Drop/Withdrawal, Late and Make-up Work:**

- The lab is designed so that most of the work can be completed during lab time. However, sometimes aspects of professional development may not be completed and necessitates working outside of class. In this case, assignments are due at the beginning of lab time. **No Late Work will be accepted.** Failure to complete an assignment on time jeopardizes the professional development project for every student enrolled in the course. If you know you will

be absent on the day an outside assignment is due, you may submit it to me or to another student in the class. If an assignment is made on a day that you are absent, it is your responsibility to find out what the assignment is and complete it by the due date. Assignments submitted by uploading to a website will be checked for time-stamps.

- **No work for extra credit will be accepted.**
- If you are late for class or leave class early within a time span less than 15 minutes early, you will be marked with a tardy. If you are late for class or leave class early within a time span of 15 minutes or more, you will be marked with an absence. Note that *three tardies will count as one absence*. **A student missing more than 20% of their class meetings may be dropped from class.** Therefore, **a student missing more than 3 lab days will be dropped from the course!** The only exception to this criterion is school activities. Proof of the school activity must be given to me seven days prior to the missed class so that missed work can be made up. Otherwise, missing class for a school activity will count as an absence.
- The last day for dropping/withdrawing from this course is **Friday, Date**. See school calendar found at [http://www.acu.edu/campusoffices/registrar/academic\\_calendar.html](http://www.acu.edu/campusoffices/registrar/academic_calendar.html). Should you decide not to complete the course for any reason, it is your responsibility to fill out necessary papers to have your name taken off the course roster. By doing so, you prevent the possibility of an assigned grade of "F" in the course. If you are withdrawn due to excessive absences, a "WF" is assigned.

### **American Disability Act Compliance Statement**

*"Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodations, you must be registered with Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call our office directly at 325-674-2667."*

## **Classroom Management**

**Electronic Devices:** Unless specified for use in learning, electronic devices are distractions to other students, to your instructor, and to you as a student. Surfing the Internet or texting during class means that you are engaged in an activity that does not address the course's content. Therefore, when not using any iDevice or computer, we will adhere to the policy used at technology-emphasized schools: Electronic devices are put away and out of sight until class time is over. In this way, you extend courtesy to peers who are part of the learning environment.

**Japanese Courtesy Reminder: Displayed in Restaurants, Buses, Trains, etc.**



**Disruptive Behavior:** If your actions disrupt the class, you will be notified by the instructor in writing and possibly asked to leave. You will be counted absent for the class session and will receive written

documentation about the disruptive behavior. If you are counted absent for disrupting class, then you will receive a zero for all work completed and submitted during the class session. This will include any work completed and submitted before you were asked to leave class. Any student that has been notified by an instructor for disruptive behavior a second time will be dropped from the course. The grade will be WP or WF depending on the student's current grade in the course. Disruptive behavior may include, but is not limited to, the following:

- Leaving class, sleeping in class, working on another subject during class, not participating in assigned task, coming to class unprepared, dressing inappropriately, etc.
- *Unauthorized use of electronic devices! (surfing the internet, text-messaging, reading texts, etc.)*

**Dress Code:** You will be expected to follow the university dress code at all times. I especially expect this since you are going to be a teacher – a role model for minors. Failure to abide by the dress code will result in being asked to leave class and counted absent for the class. You will receive a zero on any work that is due or done in-class. In addition, I will also consider appropriate dress any time you present homework, activities, etc. from the front of the room. Inappropriate dress is considered disruptive behavior.

**Guideline for appropriate dress:**

- *The overall dress code for Abilene ISD says that no midriff can show.*
- *Principal Guideline for Professional Dress at Schools: Pass the "Toothpaste Test"*  
*After getting dressed for school visitation, go to your bathroom sink and pretend you are brushing your teeth. Look up! If you can see down your shirt/blouse, you are not professionally dressed for school classrooms. (Think about leaning over students as you observe or discuss their work.)*
- *T-shirts, shorts or sports attire are not considered appropriate dress.*

## **Academic Integrity – Department of Mathematics**

### **Rationale for Policy**

The most powerful motive for integrity and truthfulness comes from one's desire to imitate God's nature in our lives. As a community of Christian students and scholars, we are each responsible to expect behaviors from each other consistent with the nature of God, to respect the community, and to respect ourselves. Expectations of academic honesty and integrity extend to both university employees and students. Every member of the community is responsible for protecting the integrity of learning, scholarship, and research. Being responsible requires action against violations in spite of peer pressure, loyalty, or compassion. Individuals must take responsibility for their own conduct and discourage misconduct by others.

### **Definition of Academic Integrity**

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Academic work includes but is not limited to reading assignments, homework assignments, assessments, examinations and tests, attendance at required out-of-class activities, written or oral presentations, and laboratory experiments and research.

Violations of academic integrity and other forms of cheating involve the intention to deceive or mislead or misrepresent and therefore, are a form of lying. Specific examples of violations of academic integrity in this course include, but are not limited to, the following:

- Submitting for credit, in whole or in part, the work of others.
- Receiving, giving, or using unauthorized aid on an examination, test, quiz, or assignment (e.g., texting).
- Viewing the answers of a nearby classmate during an examination, test, quiz, or assignment.
- Having inappropriate notes/practice work available during an examination, test, quiz, or assignment.

- Obtaining examination, test, or quiz questions before the examination, test, or quiz is given.
- Accessing printed copies or electronic copies of formulas and/or notes during an examination, test, quiz, or assignment without instructor approval.
- Failure to give credit to sources used in a work in an attempt to present the work as one's own.
- Submission of paper(s), project(s), or assignment(s), in whole or in part, obtained from any source, such as a friend, research service, or club paper file, as one's own.
- Allowing other members of a group to provide a disproportionate fraction of a required group project or activity.
- Claiming credit for an attendance or service activity without attending or performing the activity.
- Written or oral presentation of falsified materials and facts, including but not limited to the results of interviews, laboratory experiments, and field-based research.

### **Consequences of Breach**

Violations of academic integrity may result in, but are not limited to, the following consequences:

- A first offense will result in a grade of 0 on the assignment in which the violation of academic integrity occurred.
- You will be permitted to remain in the class after the first offense of being found in violation of the academic integrity policy.
- A second violation in a class will result in an automatic grade of F in the course.
- All violations of academic integrity will be reported to Dean of the College of Arts and Sciences and the Dean of Students in the Student Life Office.

### **Appeal Process**

If you would like to appeal a decision, then please follow this link to learn about how to file an appeal: <http://www.acu.edu/academics/provost/documents/academic-integrity-policy.pdf>

Tentative Course Schedule on next page

**Tentative Course Outline (Adjustments can be expected.)**

| <b>Schedule</b> | <b>MATH 418 Topic</b>                                                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Week 1          | Lesson Study Overview, Learning from Problem Solving                                                                                           |
| Week 2          | Origins of Lesson Study and Setting a Goal<br>Investigate Curriculum - State of Texas Assessment of Academic Readiness (STAAR standards)       |
| Week 3          | Investigate Curriculum - Disaggregate STAAR data, TAKS-STAAR released tests                                                                    |
| Week 4          | Investigate Curriculum – Student learning issues based on research – Articles (Center for Algebraic Thinking, MERGA, research journals)        |
| Week 5          | Investigate Curriculum Student learning issues with learning mathematical topic – explore TEKS/CCSS-M, textbooks, scope and sequence of topics |
| Week 6          | Investigate Curriculum (Write rationale, relationship of lesson to national and state standards) dates chosen for teaching                     |
| Week 7          | Plan unit and Develop Lesson<br>International Perspectives: Teaching a Problem Solving Lesson                                                  |
| Week 8          | Find a Problem                                                                                                                                 |
| Week 9          | Develop Lesson – Develop Problem – begin Anticipation of Student Solutions                                                                     |
| Week 10         | Develop Lesson – Anticipate Student Solutions, Interventions                                                                                   |
| Week 11         | Points of Evaluation/Board Work                                                                                                                |
| Week 12         | Teaching of mathematics/observation; Finalize PGL for teaching in schools                                                                      |
| Week 13         | Lesson Study – in schools                                                                                                                      |
| Week 14         | Lesson Study – in schools                                                                                                                      |
| Week 15         | PGL with final report due and Perspective Paper                                                                                                |
| Final's Week    | Final                                                                                                                                          |

# ABILENE CHRISTIAN UNIVERSITY

## LIBRARY

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### M E M O R A N D U M

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**DATE:** January 25, 2016  
**TO:** Dr. Connie Yarema  
**FROM:** Mark McCallon, Associate Dean for Library Services  
**RE:** Course Application for MATH 418 – Professional Development Experience  
in Mathematics

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After reviewing the course application, the library is able to support the proposed course. Please contact your Librarian Liaison, Melissa Atkinson ([melissa.atkinson@acu.edu](mailto:melissa.atkinson@acu.edu)), if any additional resources are needed in support of the course. Thank you for letting the library review the course application.

Friday, January 22, 2016

Abilene Christian University

Re: MATH 418 Application

Dear Connie,

The Adams Center for Teaching and Learning has completed the review of the syllabus for MATH 418: Professional Development Experience in Mathematics. The syllabus was reviewed based on the ACU Syllabus Guidelines. The syllabus proposed meets or exceeds the expectations described in these guidelines.

There are no additions or corrections necessary for this proposed syllabus.

There is no need to return the syllabus to the Adams Center for further review. Of course, if you would like to discuss any aspect of your syllabus or instructional strategies, please contact me and we will schedule a time as soon as possible. We are here to serve you as you help prepare students for Christian service and leadership throughout the world.

Grace and Peace,

A handwritten signature in black ink, appearing to read "David Christianson". The signature is stylized with a large "D" and a cursive "Christianson".

David Christianson  
Instructional Designer  
Adams Center for Teaching and Learning  
Abilene Christian University

# ACU Syllabus Checklist

Revised on July 15, 2014 based on ACU New Course Application v10.5.

## Course Title and Number

MATH 418 Professional

## Reviewer

David Christianson

## Developer

Connie Yarema

## About the course

- ☒ Course number and title
- ☒ Credit hours
- ☒ Semester and year
- ☒ Meeting time and place
- ☒ Prerequisites/co-requisites

## About the instructor(s)

- ☒ Name and title or rank
- ☒ Office location
- ☒ Contact information
- ☒ Office hours/contact expectations

## Mission statements

- ☒ ACU mission statement
- ☐ College mission statement
- ☐ Department mission statement
- ☐ Personal mission statement (optional)

## Unique Christian Perspective

- ☒ Description of how learning and Christian faith are integrated in the course

## Course Content

- ☒ Catalog description

- ☒ Intended audience
- ☒ Outline of topics

### Teaching/Learning Methods and Format of Class Sessions

- ☒ Description of the types of activities students should expect in the course

### Materials

- ☒ Required and optional materials, including textbooks, etc.

### Learning Objectives/Competencies

- ☒ Specific competencies stated in measurable terms
- ☒ Assignments or instruments that will be used to assess the competencies.

### Assessment/Grading Criteria

- ☒ Complete and accurate details of factors and elements that will comprise the final grade
- ☒ Weight or point value of all graded elements
- ☒ Grading scale with clear expectations for grades
- ☒ Extra credit opportunities (optional)

### University Policies

- ☒ Special needs policy -ADA
- ☒ Academic integrity policy (recommended)
- ☐ Title IX policy (recommended )

### Course Policies

Expectations and consequences regarding:

- ☒ Participation
- ☒ Attendance and tardiness
- ☒ Course specific academic integrity policy (optional)

### Calendar

(Note: Calendar is not required for Course Application, but it must be included in all syllabi distributed to students.)

- ☒ Exam dates
- ☒ Assignments
- ☒ Due dates and other deadlines (and late assignment/exam policy)
- ☒ Schedule of readings and topics
- ☒ Statement to reserve the right to modify the calendar as necessary

### Any comments?

The components of the Plan to Guide Learning are well described.

Submit

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**Proposed MATT Degree Plan for 2015–2016**  
January 25, 2016

**MATHEMATICS FOR GRADES 7-12 TEACHER CERTIFICATION (BS)**

| <b>BS: MATHEMATICS (ONE-FIELD TEACHER CERTIFICATION)<br/>DEGREE PLAN (MATT)</b>                                           |                     |
|---------------------------------------------------------------------------------------------------------------------------|---------------------|
| <b>UNIVERSITY REQUIREMENTS</b>                                                                                            |                     |
| Please see the University Requirements section of this catalog (page 40).                                                 |                     |
| <b>MAJOR REQUIREMENTS</b>                                                                                                 |                     |
| <b>Mathematics</b>                                                                                                        |                     |
| MATH 185 Calculus I .....                                                                                                 | (3) <sup>1</sup>    |
| MATH 186 Calculus II .....                                                                                                | 3                   |
| MATH 187 Calculus Computer Lab .....                                                                                      | 1                   |
| <del>MATH 218 Numerical Problems in Mathematics (lab) .....</del>                                                         | <del>1</del>        |
| MATH 227 Discrete Mathematics .....                                                                                       | 3                   |
| <del>MATH 247 Number Concepts for Grades 7-12 Teachers .....</del>                                                        | <del>3</del>        |
| MATH 286 Calculus III .....                                                                                               | 3                   |
| MATH 309 Algebraic Concepts for Teachers I .....                                                                          | 3                   |
| MATH 311 Geometric Concepts for Teachers I .....                                                                          | 3                   |
| <del>MATH 351 Abstract Algebra I or MATH 381 Analysis I .....</del>                                                       | <del>3</del>        |
| <del>MATH 325 Linear Algebra .....</del>                                                                                  | <del>3</del>        |
| <del>MATH 334 Linear Programming or MATH 361 Ordinary<br/>Differential Equations .....</del>                              | <del>3</del>        |
| <del>MATH 351 Abstract Algebra I .....</del>                                                                              | <del>3</del>        |
| MATH 377 Statistical Methods I .....                                                                                      | 3                   |
| <del>MATH 381 Analysis I or MATH 477 Statistical Methods II .....</del>                                                   | <del>3</del>        |
| MATH 397 Mathematics Seminar .....                                                                                        | 2                   |
| MATH 410 Algebraic Concepts for Teachers II .....                                                                         | 3                   |
| MATH 412 Geometric Concepts for Teachers II .....                                                                         | 3                   |
| MATH 418 Professional Development Experience in<br>Mathematics (lab) .....                                                | 1                   |
| MATH 497 Mathematics Capstone (capstone and<br>writing-intensive course) .....                                            | 2                   |
| <b>Advanced Selection</b>                                                                                                 |                     |
| <del>MATH 325, 334, 361, or 477 .....</del>                                                                               | <del>3</del>        |
| <b>TOTAL .....</b>                                                                                                        | <b>46 36</b>        |
| <sup>1</sup> Hours (in parentheses) may also fulfill university requirements and are<br>not included in total major hours |                     |
| <b>OTHER REQUIREMENTS</b>                                                                                                 |                     |
| <b>Computer Science</b>                                                                                                   |                     |
| <del>CS 115 or 120 .....</del>                                                                                            | <del>3</del>        |
| <b>Science</b>                                                                                                            |                     |
| CHEM 133/131, PHYS 110/111, or PHYS 120/121 .....                                                                         | (3) <sup>1</sup> /1 |
| <b>Teacher Education Requirements</b>                                                                                     |                     |
| EDUC 211 Educational Foundations and<br>Multicultural Perspectives .....                                                  | (3) <sup>1</sup>    |
| EDUC 221 Educational Psychology .....                                                                                     | (3) <sup>1</sup>    |
| EDUC 412 Secondary Curriculum and Media (capstone course) ...                                                             | 3                   |
| EDUC 432 Secondary Management and Methods<br>(capstone course) .....                                                      | 3                   |
| EDUC 476 Effective Strategies for English Language<br>Learners .....                                                      | (2) <sup>1</sup> /1 |
| EDUC 490 Student Teaching (capstone course) .....                                                                         | 6                   |
| READ 322 Reading in Secondary Content Areas .....                                                                         | 3                   |
| SPED 371 Teaching Students with Special Needs<br>(writing-intensive course) .....                                         | 3                   |
| <i>Must make application and be approved to take EDUC 490.</i>                                                            |                     |

|                                                                                                                        |                         |
|------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <i>GPA of 2.75 required to remain in Teacher Education Program</i>                                                     |                         |
| <b>TOTAL .....</b>                                                                                                     | <b><del>20</del> 23</b> |
| <sup>1</sup> Hours (in parentheses) may also fulfill university requirements and are not included in total major hours |                         |
| <b>ELECTIVES</b>                                                                                                       |                         |
| Minimum .....                                                                                                          | <b>6 13</b>             |
| <b>TOTAL MAJOR HOURS .....</b>                                                                                         | <b>72</b>               |
| <b>CRITERIA FOR ADMISSION TO TEACHER EDUCATION</b>                                                                     |                         |
| In accordance with Texas state law, students must meet the admission criteria described on page 115.                   |                         |
| <b>OTHER GRADUATION REQUIREMENTS</b>                                                                                   |                         |
| Minimum GPA in major requirements .....                                                                                | <b>2.75</b>             |
| Minimum GPA for graduation .....                                                                                       | <b>2.75</b>             |
| Minimum advanced hours .....                                                                                           | <b>33</b>               |
| Minimum total hours .....                                                                                              | <b>128</b>              |
| <i>Courses numbered 0** do not count in minimum hours required for degree.</i>                                         |                         |