

## Approval Chart for Curriculum Changes

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

Course Number EDUC 270 — New course or Degree Plan(s) \_\_\_\_\_

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

*See new course application materials*

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

|                    |                                                                                                                   | COUNCIL <sup>3</sup> |                  |       |     |      |      |      |
|--------------------|-------------------------------------------------------------------------------------------------------------------|----------------------|------------------|-------|-----|------|------|------|
|                    |                                                                                                                   | Dept./School         | College Academic | Deans | TEC | UGEC | UUAC | GRAD |
| Change to a Course |                                                                                                                   |                      |                  |       |     |      |      |      |
| 1.                 | Title (description unchanged)                                                                                     | A                    | A                | A     |     | I    |      | I    |
| 2.                 | Description (not affecting content)                                                                               | A                    | A                | A     |     | I    |      | I    |
| 3.                 | Course term(s)                                                                                                    | A                    | I                | A     |     | I    |      | I    |
| 4.                 | Content (substantive change)                                                                                      | A                    | A                | A     |     | I    |      | A    |
| 5.                 | Number of hours (lecture, lab, contact)                                                                           | A                    | A                | A     |     | A    |      | A    |
| 6.                 | Course number within the hundred                                                                                  | A                    | A                | I     |     | I    |      | I    |
| 7.                 | Course number beyond the hundred                                                                                  | A                    | A                | A     |     | A    |      | A    |
| 8.                 | Prerequisites                                                                                                     | A                    | A                | A     |     | I    |      | I    |
| 9.                 | Course fee(s)                                                                                                     | A                    | --               | A     |     | --   |      | A    |
| 10.                | From U to G or G to U                                                                                             | A                    | A                | A     |     | A    |      | A    |
| 11.                | Cross list with another department: U or G level                                                                  | A                    | A                | A     |     | A    |      | A    |
| 12.                | Department of record                                                                                              | A                    | A                | A     |     | A    |      | A    |
| 13.                | Open or close a course                                                                                            | A                    | A                | A     |     | A    |      | A    |
| 14.                | New course — See website for application and process.<br>This change includes combining or splitting a course(s). | 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         | --                |
| 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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|----------------------|------------------------------------------------------------------------------------------------------------------------------|--------------|------------------|-------|------|------|------|---------|---------|-----------|
|                      | Change to the Catalog Information                                                                                            | Dept./School | College Academic | Deans | UGEC | UUAC | GRAD | Provost | Faculty | President |
| 1.                   | General requirements for graduation including course requirements that are common to all majors for all degrees <sup>7</sup> | --           | --               | --    | A    |      |      | A       | A       | A         |
| 2.                   | Admission requirements                                                                                                       | --           | --               | --    | A    |      |      | A       | A       | A         |
| 3.                   | Policies governing academic probation and suspension                                                                         | --           | --               | --    | A    |      |      | A       | A       | A         |
| 4.                   | Requirements for graduating with honors                                                                                      | --           | --               | --    | A    |      |      | 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.

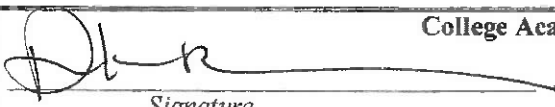
<sup>5</sup> Program or course changes that apply to any major that includes Teacher Certification will be reviewed by the college, the Teacher Education Council (TEC), and then the UUAC.

<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 8-26-19

|                                                                                               |                           |
|-----------------------------------------------------------------------------------------------|---------------------------|
| <b>Department/School Chair(s)</b>                                                             |                           |
| <br>Signature | 11/20/19<br>Approval date |
| _____<br>Signature                                                                            | _____<br>Approval date    |

|                                                                                                |                           |
|------------------------------------------------------------------------------------------------|---------------------------|
| <b>College Academic Council(s)</b>                                                             |                           |
| <br>Signature | 11-26-19<br>Approval date |
| _____<br>Signature                                                                             | _____<br>Approval date    |

|                                                                                                |                           |
|------------------------------------------------------------------------------------------------|---------------------------|
| <b>Dean(s)</b>                                                                                 |                           |
| <br>Signature | 11-26-19<br>Approval date |
| _____<br>Signature                                                                             | _____<br>Approval date    |

|                                                                                                        |                          |
|--------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Teacher Education Council</b>                                                                       |                          |
| <br>Chair's signature | 12-2-19<br>Approval date |
| _____<br>Chair's signature                                                                             | _____<br>Approval date   |

|                                  |                        |
|----------------------------------|------------------------|
| <b>General Education Council</b> |                        |
| _____<br>Chair's signature       | _____<br>Approval date |

|                                       |                        |
|---------------------------------------|------------------------|
| <b>Undergraduate Academic Council</b> |                        |
| _____<br>Chair's signature            | _____<br>Approval date |

|                            |                        |
|----------------------------|------------------------|
| <b>Graduate Council</b>    |                        |
| _____<br>Chair's signature | _____<br>Approval date |

|                    |                        |
|--------------------|------------------------|
| <b>Provost</b>     |                        |
| _____<br>Signature | _____<br>Approval date |

|                                  |                        |
|----------------------------------|------------------------|
| <b>Faculty</b>                   |                        |
| _____<br>Chair of faculty senate | _____<br>Approval date |

|                    |                        |
|--------------------|------------------------|
| <b>President</b>   |                        |
| _____<br>Signature | _____<br>Approval date |

# Application for a New Course v10.7

Discard instructional pages A-C before submitting application

|                                         |                            |
|-----------------------------------------|----------------------------|
| Course ID ( <i>Subject and Number</i> ) | EDUC 270: Concepts of Math |
|-----------------------------------------|----------------------------|

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

|     |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                              |
|-----|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Course Developer                                                                                     | Mitzi Adams                                                                                                                                                                                                                                                                                                                                                  |
| 2   | Course Instructor                                                                                    | Mitzi Adams                                                                                                                                                                                                                                                                                                                                                  |
| 3   | Course Title                                                                                         | Conceptual Understanding and Procedural Fluency in Mathematics                                                                                                                                                                                                                                                                                               |
| 4   | Course Abbreviation for Banner if title is more than 30 characters                                   | Concepts of Math                                                                                                                                                                                                                                                                                                                                             |
| 5   | College                                                                                              | College of Education and Human Services                                                                                                                                                                                                                                                                                                                      |
| 6   | Department or School                                                                                 | Teacher Education                                                                                                                                                                                                                                                                                                                                            |
| 7   | Number of Credit Hours                                                                               | 3 hours                                                                                                                                                                                                                                                                                                                                                      |
| 8a. | Number of contact hours – lecture                                                                    | 3 hours                                                                                                                                                                                                                                                                                                                                                      |
| 8b. | Number of contact hours – lab/activity                                                               | None                                                                                                                                                                                                                                                                                                                                                         |
| 9   | Is the course for a fixed or variable number of credit hours?                                        | Fixed                                                                                                                                                                                                                                                                                                                                                        |
| 10  | Explanation for variable credit                                                                      | N/A                                                                                                                                                                                                                                                                                                                                                          |
| 11  | Is the course repeatable for additional credit?                                                      | No                                                                                                                                                                                                                                                                                                                                                           |
| 12  | Maximum total number of credit hours a student can earn for this course                              | 3 hours                                                                                                                                                                                                                                                                                                                                                      |
| 13  | What type of course is this?<br>(Select one option. Please see Schedule Type definitions on Page C.) | <input checked="" type="checkbox"/> Traditional lecture<br><input type="checkbox"/> Traditional lab<br><input type="checkbox"/> Traditional lecture/lab<br><input type="checkbox"/> Experiential Learning<br><input type="checkbox"/> Seminar<br><input type="checkbox"/> Studio<br><input type="checkbox"/> Thesis<br><input type="checkbox"/> Dissertation |

|     |                                                                                                                                                            |                                                                                                                                                                                                                                   |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14  | Number of faculty workload hours                                                                                                                           | 3 hours                                                                                                                                                                                                                           |
| 15  | Grade Mode                                                                                                                                                 | <input checked="" type="checkbox"/> Standard<br><input type="checkbox"/> Credit/No Credit (undergrad only)                                                                                                                        |
| 16  | Maximum Enrollment                                                                                                                                         | 24                                                                                                                                                                                                                                |
| 17  | <b>Catalog Description</b><br>(50 words or less)                                                                                                           | This course addresses development for each of the 5 mathematics content strands at the K-6 grade level, connecting procedural knowledge to the underlying concept.                                                                |
| 18  | List any prerequisites (course/s, test scores, class standing, major, etc.)                                                                                | Limited to IDSC and SPEL. Must meet one of the following: MATH SAT score of 530; MATH ACT Score of 20; mathematics placement testing score at the level required for admission to MATH 120; or successful completion of MATW 019. |
| 19  | List any corequisites (these <i>must</i> be taken at the same time; note that a single requirement cannot be both a prerequisite <i>and</i> a corequisite) | None                                                                                                                                                                                                                              |
| 20  | If the course is cross-listed, specify the Course ID(s)                                                                                                    | None                                                                                                                                                                                                                              |
| 21  | Does this course require any additional student course fees?                                                                                               | <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes<br>If yes, attach a completed "Request to Add or Change Course Fees" form. Describe in section IV-8.                                                       |
| 22a | Will the course be offered in <b>fall</b> terms?                                                                                                           | <input type="checkbox"/> No<br><input checked="" type="checkbox"/> Yes<br>If yes: all, even, or odd years?                                                                                                                        |
| 22b | Will the course be offered in <b>spring</b> terms?                                                                                                         | <input type="checkbox"/> No<br><input checked="" type="checkbox"/> Yes<br>If yes: all, even, or odd years?                                                                                                                        |
| 22c | Will the course be offered in <b>summer</b> terms?                                                                                                         | <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes<br>If yes: all, even, or odd years?                                                                                                                        |
| 23  | First semester this course will be offered under new Course ID. <i>May not be earlier than the coming fall semester.</i>                                   | Fall 2020                                                                                                                                                                                                                         |
| 24  | Is this course required for a degree/s?                                                                                                                    | <input type="checkbox"/> No<br><input checked="" type="checkbox"/> Yes                                                                                                                                                            |

|    |                                                                                                                                                                                                                          |                                                                                                                            |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 25 | Should the addition of this course be retroactively applied to the degree plan it supports?<br><i>This is rare, and rationale should explain compelling extenuating circumstances.</i>                                   | <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes<br>If yes, provide rationale:                       |
| 26 | Has this course been offered as a Special Topics course?<br><i>New courses are not required to be taught as Special Topics courses prior to approval.</i>                                                                | <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Yes<br>If yes, provide course ID, term, and enrollment: |
| 27 | List any courses in which the content overlaps the proposed course. (Course ID and Name)<br><i>Attach a statement from the instructor/dept chair of the existing course justifying the new offering in Section IV-D.</i> | None                                                                                                                       |

## II. Curriculum

- A. Explain effect on degree plans. If the addition of the course alters degree requirements, submit a separate Approval Chart for Curriculum Change to update the degree plan.

The new course does not change the number of hours required in the applicable degree plans. EDUC 270 will change which course satisfies the mathematics requirements for the degrees. Math 237 will now fulfill the mathematics requirement.

- B. Justify the addition of this course to the current curriculum, explaining the gap it meets.

Candidates for certification in EC-6 will certify to teach mathematics. Developing a strong level of conceptual understanding is critical for the development of effective teachers of mathematics. The Texas Education Agency Pedagogy and Professional Responsibilities (PPR) Standards provide the structure and the standard for courses in teacher education with a significant emphasis on content specific pedagogy. EDUC 270 seeks to strengthen connections between concept knowledge and procedural fluency in each of the content strands for teacher candidates.

EDUC 370, Teaching Mathematics for Grades 3-6, assumes that conceptual understanding of the big ideas and proficiency in the application of major concepts in each of the content strands in mathematics for grades 3 – 6 are appropriately developed. In EDUC 370, candidates apply theory and connected strategies for *teaching* mathematics and participate in a rich field experience that targets planning, teaching, and assessment of lesson objectives with children in grades 3, 4, and 5.

Often students enter EDUC 370 lacking the confidence, number sense, knowledge, and strategic competence needed to begin applying teaching strategies, the focus of the course. Too often candidates seeking certification for Early Childhood through Grade 6 (EC-6) and EC-6 with Special Education struggle with questions on the released version of the 5<sup>th</sup> grade State of Texas Assessment for Academic Readiness (STAAR) exam. I believe this to be a problem in the ways that mathematics is systemically

taught and not often the result of inadequacy of the student.

The Texas Essential Knowledge and Skills (TEKS) are the educator's curriculum in Texas schools. The TEKS coupled with the National Council for Teachers of Mathematics' (NCTM) Principles and Standards for School Mathematics form the conceptual framework for this course in preparing teacher candidates for tomorrow's students. Targeted standards include the content standards, process standards, and mathematical proficiency standards.

Content Standards: (TEKS/NCTM)

Numbers & Operations

Algebra

Geometry

Measurement

Data Analysis & Probability

Process Standards: (NCTM)

Problem Solving

Communication

Connections

Representation

Reasoning & Proof

Mathematical Proficiency Standards: (NCTM)

Conceptual Understanding

Procedural Fluency

Strategic Competency

Adaptive Reasoning

Productive Disposition

Course alignment:

EDUC 270 will complete an aligned EDUC sequence based on long-standing educational theories of learning as well as more recent neuroscience research identifying how brains learn mathematics best. The goals proposed in this course, EDUC 270, align with the TEKS; the NCTM standards for teaching and learning; the goals of EDUC 323 (Early Math and Science) and the goals of EDUC 370 (Teaching Math in Grades 3 – 6).

EDUC 270 will serve as a pre-requisite for EDUC 323 and EDUC 370. EDUC 270 will focus on content knowledge with alignment to the TEKS Process Standards and NCTM's Proficiency Standards. EDUC 370 builds on this requisite knowledge to prepare candidates for teaching mathematics content with alignment to the TEKS Process Standards and NCTM's Proficiency Standards.

### **III. Course Design**

#### **A. Audience and Course Goal**

1. Describe the intended audience, including prerequisite skills.

EDUC 270 is designed for students seeking a degree with certification for teaching in Early Childhood through Grade 6 or Early Childhood through Grade 6 with Special Education.

2. State the overarching course goal(s) in performance terms.

Students will develop greater competence and deeper conceptual understanding across the content strands as they prepare to teach grades EC-6. The overarching goals include the following:

- Candidates in EDUC 270 will *demonstrate conceptual understanding* and *connect* concept proficiencies to the procedures and algorithms they have been taught so that they can be prepared to teach students in their future classrooms, aligning with state and national standards of teaching and learning;
- Candidates will define and apply the content language in daily mathematics;
- Candidates will apply the role of visualization in learning mathematics through the use of appropriate mathematics learning tools;
- Candidates will connect educational theory and brain neuroscience research to their own learning; and
- Candidates in EDUC 270 will describe the power of mindset in learning mathematics.

B. Student Learning Outcomes and Measurements

|   | Student Learning Outcome                                                                                                                                                       | Measurement                                                                                                   |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 1 | Students will know the science behind how the brain learns mathematics, mindset, and the impact of growth/fixed mindsets on learning                                           | Math History Project<br>Brain Science/Math Mindset Quiz<br>Final                                              |
| 2 | Students will know the content, process, and mathematics proficiency standards                                                                                                 | Quiz, final                                                                                                   |
| 3 | Students apply the essential concepts of numbers and operations with a focus on the language of mathematics and on connecting procedural knowledge to conceptual understanding | Math Journal<br>Math Vocabulary Quiz<br>Numbers and Operations Test<br>Explain Everything Assignment<br>Final |
| 4 | Students will apply the essential concepts of algebra with a focus on the language of mathematics and on connecting procedural knowledge to conceptual understanding           | Math Journal<br>Math Vocabulary Quiz<br>Algebra Test<br>Explain Everything Assignment<br>Final                |
| 5 | Students will apply the essential concepts of geometry with a focus on the language of mathematics and on connecting procedural knowledge to conceptual understanding          | Math Journal<br>Math Vocabulary Quiz<br>Geometry Test<br>Explain Everything Assignment<br>Final               |

|   |                                                                                                                                                                                            |                                                                                                                      |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 6 | Students will apply the essential concepts of measurement with a focus on the language of mathematics and on connecting procedural knowledge to conceptual understanding                   | Math Journal<br>Math Vocabulary Quiz<br>Measurement Test<br>Explain Everything Assignment<br>Final                   |
| 7 | Students will learn the essential concepts of data analysis and probability with a focus on the language of mathematics and on connecting procedural knowledge to conceptual understanding | Math Journal<br>Math Vocabulary Quiz<br>Data Analysis and Probability Test<br>Explain Everything Assignment<br>Final |

### 3. Text and Resources

#### Undergraduate

Elementary and Middle School Mathematics: Teaching Developmentally, 10<sup>th</sup> Edition

ISBN: 9780134802084

Author: John Van de Walle, Karen S. Karp, and Jennifer Bay-Williams  
Pearson Publications

Technology Application such as Explain Everything or iMovie

## IV. Supporting Documentation

| Required of all applications |                                                                                                                                                                                              |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                            | <b>Approval Chart for Curriculum Changes</b>                                                                                                                                                 |
| 2                            | <b>Syllabus</b> — <b>Attach</b> the syllabus for the course based upon the anticipated first-semester offering.                                                                              |
| 3                            | <b>Instructional Design</b> — The syllabus must be reviewed by the Adams Center. <b>Attach</b> a copy of the Adams Center letter.                                                            |
| 4                            | <b>Library</b> — Submit new course application and syllabus to the Library dean's office. <b>Attach</b> the Library's memo.                                                                  |
| Attach if applicable         |                                                                                                                                                                                              |
| 5                            | <b>Content Overlap</b> — Include one document for each course you listed in Section I-27. <b>Attach</b> statement from instructor/dept chair of existing course justifying the new offering. |
| 6                            | <b>Departmental Resources</b> — List the resources that support the course and are                                                                                                           |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <p>available only through the department, if applicable. <b>Attach</b> the list of the holdings and the location/s.</p> <p>I hold a Master of Arts degree in Teaching Mathematics in the Elementary Grades.</p> <p>See Appendix A for a listing of texts that I have read and am reading to inform my knowledge of current issues, research, and teaching related questions as well as to solidify my philosophy of teaching mathematics in equitable ways. See Appendix B for information related to professional development including courses and professional development that impacted my knowledge and my passion for teaching mathematics at the elementary level.</p> <p>See Appendix C for the list of the current resources that will support the teaching of EDUC 270.</p> |
| 7 | <p><b>Resources</b> — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). <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.</p> <p>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 8 | <p><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.</p> <p>None</p>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 9 | <p><b>Justification</b> — <b>Attach</b> any documents to which you refer in Section II-B.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Appendix A  
Bibliography of Related Texts That Have Informed Course Development

- Bay-Williams, Jennifer and Kling, Gina (2019). *Math Fact Fluency: 60+ Games and Assessment Tools to Support Learning and Retention*. Alexandria, Virginia: Association for Supervision and Curriculum Development and National Council for Teachers of Mathematics.
- Boaler, Jo (2016). *Mathematical Mindsets*. San Francisco, CA: Jossey-Bass.
- Boaler, Jo, (2019). *Limitless Mind*. San Francisco, CA: Jossey-Bass.
- Hattie, John (2012). *Visible Learning for Teachers*. New York: Routledge Publishers.
- Humphreys, Cathy and Parker, Ruth (2015). *Making Number Talks Matter*. Portland, Maine: Stenhouse Publishers
- Keeley, Page and Tobey, Cheryl Rose (2011). *Mathematics Formative Assessment: 75 Practical Strategies for Linking Assessment, Instruction, and Learning*. Thousand Oaks, California: Corwin Mathematics and National Council for Teachers of Mathematics.
- National Council for Teachers of Mathematics (2006). *Curriculum Focal Points for Kindergarten Through Grade 8 Mathematics: A Quest for Coherence*. Reston, Virginia: National Council for Teachers of Mathematics.
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## Appendix B

### Additional Resources That Have Informed Course Development

#### Yocubed.org Online Resources

This website provides a number of resources for teachers including current, research-informed articles related to teaching and learning mathematics, neuroscience, and mindset. Additionally, the website provides high-ceiling/low-floor problems, activities, and experiences designed to be used in classrooms across the country with research-driven practices in mind.

#### Mindset Mathematics Workshop, Summer 2019: Stanford, California

Dr. Pemberton sent two faculty from Teacher Education: Mitzi Adams, Instructor for EDUC 370 (Teaching Mathematics in Grades 3 – 6) and Julie Douthit, Instructor for EDUC 323 (Early Math and Science). Additionally, Dr. Pemberton sent four teachers from Ward Elementary with whom I partner in the EDUC 370 field experience.

This 2-day workshop provided participants with a deep dive into:

- current research related to mindset and its impact on math attitudes,
- the current state of mathematics education in the United States with strategies for relevant, related mindset changes, and
- philosophies and strategies for classroom instruction that fosters equity, openness, and rigor.

Participants in this 2-day workshop left with a summer camp curriculum. This curriculum was written and used in 2015 in Stanford with 88 area middle-school students identified as 'at risk'. Data collected and analyzed during this 18-day summer math camp revealed an average of over two-years growth based on pre- and post-assessments using the state standardized tests. This curriculum is a valuable resource for both EDUC 270 and EDUC 370.

## Appendix C

### Math Manipulatives Required for Successful Classroom Experiences For EDUC 270

The following list of manipulatives are currently owned and stored in the Phillips Education Building. This list of manipulatives includes, but is not limited to:

Rek-N-Raks  
100's strings  
base ten blocks  
geoboards  
shape blocks  
Cuisenaire Rods  
Fraction Circles  
Fraction Rods  
Fraction Fringes  
algebra tiles, balance scales

Other tools:

iPads  
a variety of counters  
dice  
spinners  
cards  
mathematics mats including place value charts, Frayer Model graphics, and Ten Frames

Supporting Concepts and Literacy Connections:

Children's literature resources are housed in the Phillips Education Building.

Notes:

- Children's literature resources are owned personally by the instructor and housed in the Phillips Education Building;
- Children's literature resources have been purchased by the Teacher Education Department and are housed in the Curriculum Lab in the Phillips Education Building, available for check out;
- Children's literature can serve the purpose of introducing, reinforcing, reteaching, and/or emphasizing mathematics concepts in the content strands: numbers & operations, algebra, geometry, measurement, and data analysis & probability.

EDUC 270: Conceptual Understanding  
and Procedural Fluency in Mathematics

Course Syllabus  
Fall 2020

**Abilene Christian University**

College of Education and Human Services

Teacher Education

Instructor: Mitzi Adams, M.A. Teaching Elementary Mathematics

Room 122, 9:30 – 10:50 T/Th

Office Location: Phillips Education Building, Room 121

Office Hours: MW 11:00 a.m. – 1:00 p.m.

T 1:00 – 4:00 p.m. OR by appointment

Email: [mja07a@acu.edu](mailto:mja07a@acu.edu)

Phone: 325-674-2114 (office) or 325-280-2863 (cell)

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

The mission of the College of Education and Human Services is to equip students for global service and leadership through exemplary practice in education and human services, informed by a Christian perspective.

*The mission of Teacher Education is to prepare exemplary, committed educators for service in diverse and multicultural communities for the glory of God.*

**Philosophy of Teaching:** I believe that all students have the right to learn. A dynamic classroom is one in which ideas are shared, growth is valued, goals are measured, and milestones are celebrated. A dynamic classroom is a classroom in which I teach to ensure *all students have access to position and competence*. A dynamic classroom is one in which I teach content with a specific focus on growth mindset, empowering all of my students to believe in themselves and become motivated to pursue learning.

The art of teaching is a developed craft, often built upon intuitive gifts and abilities. While good teachers often exhibit a “gift”, effective teaching is a result of hard work. Strong teaching habits and characteristics are developed from intentional study, practice, and reflection.

In addition, teaching is a *vocation*, a calling, a ministry. Teaching is a profession of giving and serving. Each day, children walk through the door with *hope* in their hearts. The best teachers can give their students is the excellent education to which they are entitled.

Preparing teachers for tomorrow’s classrooms is the highest honor in the profession of education. My desire is that my students leave my classrooms equipped with knowledge, pedagogy, and a growing commitment to the profession and their own development as an educator.

**Course Audience:** This course is required for all candidates seeking certification for 1) Early Childhood through Grade 6 and Early Childhood through Grade 6 with Special Education.

**Course Description:** 3 hours credit. EDUC 270 focuses on the big ideas of the five mathematics content strands. Standards from the Texas Education Knowledge and Skills (TEKS) and the National Council for Teachers of Mathematics (NCTM) provide the conceptual framework for this course. This course addresses mathematical content schema; mathematical language, number sense; connections between conceptual understanding and procedural fluency; and knowledge about mathematical mindsets.

**Course Prerequisites:** Limited to IDSC and SPEL. Must meet one of the following: MATH SAT score of 530; MATH ACT Score of 20; mathematics placement testing score at the level required for admission to MATH 120; or successful completion of MATW 019.

**Course Outcomes:** The Texas Education Knowledge and Skills, National Council for Teachers of Mathematics Standards for Teaching and Learning provide the conceptual framework for EDUC 270. Driven by a commitment to Constructivist Theory, Socio-Cultural Learning Theory, and current research on mindset, students completing this course will:

- explain the Content, Process, and Mathematical Proficiency Standards for Mathematics identified by the National Council for Teachers of Mathematics;
- connect conceptual understanding and procedural fluency in the five content strands;
- apply the language of mathematics in work and discussions;
- apply visualization strategies in mathematics; and
- connect educational theory, neuroscience research, and the role of mindset in learning mathematics.

**PPR Standards:** The Texas Classroom Teacher Certification Standards Pedagogy and Professional Responsibilities (PPR) Standards serve as curriculum standards for courses in professional education (EDUC, SPED, READ and EACH). The relevant standards for this course are listed below. Full descriptions of the standards with specifications for each certification level (EC-3, EC-6, 4-8 and 7-12) can be found in Chapter 235 of the Texas Administrative Code.

### **Domain 2: Knowledge of Students and Student Learning**

Classroom teachers work to ensure high levels of learning, social-emotional development, and achievement outcomes for all students, taking into consideration each student's educational and developmental backgrounds and focusing on each student's needs.

### **Domain 3: Content Knowledge and Expertise**

Classroom teachers exhibit an understanding of content, discipline, and related pedagogy as demonstrated through the quality of the design and execution of lessons and the ability to match objectives and activities to relevant state standards.

### **Resources:**

Textbooks: Elementary and Middle School Mathematics: Teaching Developmentally in Grades 3-8  
Van de Walle, Karp, and Bay-Williams

**Final Exam:** To be determined

## **Course Policies:** Class Attendance & Participation, Preparation, and Performance

Professional behaviors encompass attitudes of ownership toward learning and individual responsibilities toward the communities in which we learn and teach. Attendance, preparation, and participation each reflect an attitude of professionalism, contribute to a candidate's successful performance, and are appropriate for candidates seeking licensure.

Attendance: Attendance is the responsibility of the student. In the event of an absence, please communicate with the instructor prior to the absence at the earliest time possible. Due dates are not adjusted because of absences.

If a candidate is more than 15 minutes late or leaves class more than 15 minutes early, that candidate will be marked absent for that day.

University Approved Absences: It is the student's responsibility to notify the instructor of any anticipated absence for a University-Approved Event (with appropriate documentation) at least three days prior to the date of the planned absence. At that time, the instructor will set a date and time for when the student will submit make-up work.

More than 4 total absences accrued across the semester will result in automatic withdrawal and/or a grade of 'D' for the course.

The final grade for this course will be lowered by 4 points for each absence after two total absences.

Preparation: Each student in this course is expected to be present and prepared for class. It is expected that students will complete assigned readings and study the content prior to the start of class in order to be a productive member of the class.

It is expected that students will be fully engaged in the activities, discussions, and presentations. Sleeping, texting, and/or engaging in disruptive or distracting behaviors will be counted as an absence regardless of the amount of time the candidate is physically present.

Performance: All directions for assignments are posted in Canvas and should be followed carefully. Teacher candidates are expected to submit work that meets these standards of excellence.

Assignments: The following are the protocols for this course related to the submission and scoring of assignments:

- Assignments must be complete upon submission.
- Assignments are due at the beginning of the class period on the date they are due.
- If an assignment is incomplete, it will be scored as is and returned with the expectation that the assignment be completed to standard. The late work policy applies.
- Any assignment and/or exam missed because of an absence may not be made up unless approved by the instructor.
- In order to be eligible to pass the course, candidates must complete all assignments and demonstrate the established proficiency.

**Late Work:** The final date late work will be accepted for a grade is 5:00 p.m. one week past the original due date of that given assignment. The grade penalty for work submitted late is –5 points from the assessed score for each day it is late. If the assignment is not received by the start of class time one week past the due date, the assignment will not be accepted for a grade higher than a 0 in the gradebook. However, to be eligible for a grade in the course higher than a D, all assignments must be completed to a standard no lower than a C per the rubric provided.

Late work will impact your final grade in the following way:

| # of Late Assignments | Final Grade              |
|-----------------------|--------------------------|
| 2                     | No grade higher than a B |
| 3                     | No grade higher than a C |
| 4                     | No grade higher than a D |

**Extra Credit:** As per department policy, extra credit is not offered as a way to raise a grade.

**Requirements for written assignments:** Written assignments must use Times New Roman or Century Gothic, 12-point font, with numbered pages that are double spaced with 1-inch margins.

Citations and references should follow APA formatting.

Conventional spelling, accuracy in writing mechanics, and correct use of grammar is expected for all work. Professionalism is expected.

#### Grading Scale:

- A 92-100%
- B 83-91%
- C 74-82%
- D 65-73%
- F Below 65

**Assignments:** Assignments given in this course will be in one of three categories: Completion, Graded, and Mastery Assignments.

**Completion Assignments:** Students will complete two unscored assignments during the course of the semester in order to be eligible for a grade higher than a D in the course: *Pre-K Guidelines Modules Assignment* and the *5<sup>th</sup> Grade STAAR Test*. Completion requirements for each of these assignments will be described in the “Description of Assignments” section that follows.

**Graded Assignments:** Policy for grading is provided for each assignment.

**Mastery Assignments:** In order to earn a C or better in the course, designated assignments must be completed at a mastery level consistent with a grade of C or better with no more than 1 resubmission. If the resubmission does not meet the mastery level of 74% or better, the highest grade possible in the course will be a D. If the assignment is late, the candidate forfeits the opportunity for a resubmission. Mastery assignments are **bolded** in Table 1. This table is found with the Description of Assignments below.

## **Description of Assignments:**

### **Completion Assignments:**

*Pre-K Guidelines Modules Assignment:* Students will complete the Texas Education Agency Pre-K Guidelines for Mathematics modules. A certification of completion must be submitted by a specified date near the close of the semester in order to be eligible for a grade higher than a D for the course.

*5th Grade STAAR Test:* Students will complete the 5<sup>th</sup> grade STAAR test by the end of the 3<sup>rd</sup> week of the semester. A tutoring intervention will be determined for students whose grade falls below 74%. Following the intervention, students will retake the 5<sup>th</sup> Grade STAAR Test to identify areas of growth and target areas for continued development.

### **Graded Assignments:**

**Bolded** = Mastery Level Assignments

***Mathematics History:*** (Mastery Assignment) Following instruction on mindset, mathematics anxiety, and mathematics trauma, students will use iMovie (or a similar platform) to create a digital story of their own mathematics histories. Each student will submit & present his/her digital story using a QR code.

*Brain Science/Mathematics Mindset Assessment:* Following instruction and activities, students will be tested for knowledge of brain science, fixed and growth mindset, and the impact on learning that mindset plays.

*Standards Quiz:* Following instruction, students will be able to identify (list and discuss) each of the standards identified for Content, Process, and Mathematical Proficiency.

*Language of Mathematical Assignment:* Following instruction and a reading assignment about the role of mathematics vocabulary in learning, students will write a review and reflection.

*Mathematical Journal Assignments:* For each of the content strands, students will be assessed on complete, thorough, accurate work processed during mathematics class. Scored by a rubric, students will be assessed on vocabulary use, representation of mathematics concepts/mathematics work, and thoroughness of work.

*Mathematical Vocabulary Quizzes:* For each of the content strands, students will be assessed on appropriate mathematical vocabulary including accurate spelling, definitions, examples, representation, and/or application.

*Module Tests:* At the end of each content strand module, students will be assessed on concept knowledge and procedural fluency. Students must score a C or higher on each content module test in order to earn a C or higher in the course. Students are allowed 1 retake to achieve the required level of mastery.

***Explain Everything Assignment:*** (Mastery Assignment) Given a problem to solve at the close of each content strand module, students will use a journal or digital platform to record the process of solving a problem. (The journal format will be assigned for the first three content strands, and the

digital format will be assigned for the last two content strands. See calendar.) Students are allowed 1 resubmission to demonstrate the required level of mastery in order to be eligible for a grade of C or better in the course.

*Final Exam:* Students will have a final, comprehensive exam.

**Calendar of Assignments:** In Table 1, you will find a list of assignments, including point values and a timeline. For each assignment, you will find detailed instructions, the due date, and the rubric by which the assignment will be scored in Canvas.

Table 1: Course Assignments with Points and Timeline

**Bolded** = Mastery Level Assignments

| Module                           | Assignment/Assessment                                                                                                                                                                 | Points                                     | Calendar    |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------|
| Module 1: Impact of Mindset      | <b>Math History Project</b><br><br>Brain Science/Mathematical Mindset Quiz                                                                                                            | <b>30</b>                                  | Weeks 1-4   |
| Module 2: Standards and Language | 5 <sup>th</sup> Grade STAAR Test<br><br>Pre-K Primary Guidelines for Mathematics (3 hours)<br><br>Standards Quiz<br>Language of Mathematics Article<br>Review and Response Assignment | Completion Assignments<br><br><br>15<br>24 |             |
| Module 3: Number and Operations  | Mathematics Journal<br>Mathematics Vocabulary Quiz<br>Number & Operations Test<br><b>Explain Everything Assignment</b>                                                                | 10<br>10<br><br><b>12</b>                  | Weeks 5-8   |
| Module 4: Algebra                | Mathematics Journal<br>Mathematics Vocabulary Quiz<br>Algebra Test<br><b>Explain Everything Assignment</b>                                                                            | 10<br>10<br><br><b>12</b>                  | Weeks 9-10  |
| Module 5: Geometry               | Mathematics Journal<br>Mathematics Vocabulary Quiz<br>Geometry Test<br><b>Explain Everything Assignment</b>                                                                           | 10<br>10<br><br><b>12</b>                  | Weeks 11-12 |

|                                             |                                      |           |             |
|---------------------------------------------|--------------------------------------|-----------|-------------|
| Module 6:<br>Measurement                    | Mathematics Journal                  | 10        |             |
|                                             | Mathematics Vocabulary               | 10        |             |
|                                             | Quiz                                 | 30        |             |
|                                             | Measurement Test                     |           |             |
|                                             | <b>Explain Everything Assignment</b> | <b>15</b> |             |
| Module 7: Data<br>Analysis &<br>Probability | Mathematics Journal                  | 10        | Weeks 13-15 |
|                                             | Mathematics Vocabulary               | 10        |             |
|                                             | Quiz                                 | 30        |             |
|                                             | Data Analysis &<br>Probability Test  |           |             |
|                                             | <b>Explain Everything Assignment</b> | <b>15</b> |             |
| Finals Week                                 | Final                                | 100       | Week 16     |

### **University/Departmental Policies and Relevant Information**

**Writing Standards:** The field of education uses the American Psychological Association (APA) standards for writing. Therefore, in courses in Teacher Education students are expected to utilize APA format for all formal writing assignments. The APA manual is available in the library and citation support tools are available on the ACU Library webpage. You are encouraged to procure a personal copy of the current APA writing style manual.

In addition, as students in a professional program, it is expected that care will be given in all written communication. Accurate use of grammar and spelling is always important. It is advised that students use professionalism in written communication in e-mails as well.

**ACU Writing Center:** The ACU Writing Center, located in the Learning Commons, welcomes all students who would like free assistance with their writing. Trained and experienced tutors will provide feedback on any writing assignment at any stage of the writing process. Please call 674-4833 for more information.

**Academic Integrity and Professional/Ethical Conduct:** The Teacher Education Program at Abilene Christian University is committed to integrity and ethical conduct. It is the responsibility of faculty, staff and students to honor Christian and professional ethical principles including, but not limited to, academic integrity, honesty, and caring. Students and faculty have the right to expect their work to be assessed on its academic merit. All faculty, staff, and students are expected to espouse academic honesty and every individual is responsible for upholding this expectation. Ethical and honest behavior is required in all actions that support the Teacher Education Program's academic mission. This is also informed by the ethical expectations outlined by the Texas State Board for Educator Certification in the Code of Ethics and Standard Practices for Texas Educators. Finally, our Christian commitment calls us to the highest standards of ethical behavior and integrity.

**ADA 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.

**Incomplete Policy:** An incomplete may be granted if a teacher candidate has not met the requirements of the course due to extreme situations outside the candidate's control. An incomplete is not given when a student has simply been negligent toward class requirements. An "I" can only be assigned if the candidate has completed at least 75% of the course in good standing. If a student knows early in the semester that life has presented a significant challenge, it is recommended that a conference is scheduled with the course instructor to assess whether it will be in the candidate's best interest to withdraw from the course and take the course at a later time. An "I" is removed by the completion of the necessary work within the next long-term or time approved in writing by the instructor, otherwise the "I" will become an "F" on the student's record. It is **not possible** to change the grade after the "F" is recorded. Incompletes must be addressed before the end of the next long term. It is also important to understand that an "I" calculates as an "F" in the GPA until it is completed. This may impact a candidate's admission status and/or eligibility for financial aid. For these reasons, the teacher candidate must carefully evaluate whether an "I" is the best option. If it is determined that an "I" is the best option, an Incomplete Policy Contract will be signed by the candidate and the instructor and be filed in the Admission and Candidacy File in the Certification Office. The contract form is included in the Teacher Education Department Forms and Rubrics section of the Teacher Education Handbook.

## Appendix A

Alignment Document  
Mastery Assignments in **Bold**

|                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Texas Classroom Teacher Certification Standards<br>Pedagogy and Professional Responsibilities (PPR)<br>Standards                                                                                                                                                                                                  | EDUC 270 Assignments                                                                                                                                                                                                                                                  |
| <b>Knowledge of Student and Student Learning:</b><br>Classroom teachers work to ensure high levels of learning, social-emotional development, and achievement outcomes for all students, taking into consideration each student's educational and developmental backgrounds and focusing on each student's needs. | <b>Mathematics History</b><br>Brain Science/Mathematics Mindset Quiz<br>Pre-K Guidelines Training for Mathematics                                                                                                                                                     |
| <b>Content Knowledge and Expertise:</b><br>Classroom teachers exhibit an understanding of content, discipline, and related pedagogy as demonstrated through the quality of the design and execution of lessons and the ability to match objectives and activities to relevant state standards.                    | Standards Quiz<br>Language of Mathematics Article Review and Response<br>Mathematics Journal<br>Mathematics Vocabulary Quizzes<br>Module Tests:<br>Pre-K Guidelines Training for Mathematics<br>5th grade STAAR<br><b>Explain Everything Assignment</b><br>Final Exam |

November 22, 2019

Mitzi Adams  
Phillips Education Building 121  
[mja07aE@acu.edu](mailto:mja07aE@acu.edu)  
325-674-2114

Re: EDUC270: Conceptual Understanding and Procedural Fluency in Mathematics

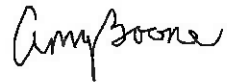
Dear Mrs. Adams,

Thank you for the submission of EDUC270: Conceptual Understanding and Procedural Fluency in Mathematics. I reviewed the syllabus based on the [ACU Syllabus Guidelines](#) and this syllabus meets the guidelines.

This letter is not meant to be a final approval in the course application process. Instead it is intended as a reference which will be read by your department chair and members of the council, who may also have questions or comments of their own.

We would like to thank you for allowing the Adams Center team to review your course application. The instructional design team would love to work with you on your syllabus, as well as the design, development or revision of this and other courses. If there is anything else we can do to help you, please feel free to let me know.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Amy Boone".

# ABILENE CHRISTIAN UNIVERSITY

## LIBRARY

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

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**DATE:** 18:23  
**TO:** Mitzi Adams  
**FROM:** Mark McCallon, Associate Dean for Library Services  
**RE:** Course Application for EDUC 270 – Conceptual Understanding and  
Procedural Fluency in Mathematics

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After reviewing the course application and syllabus, the library is able to support the proposed course. Please contact Melissa Atkinson ([melissa.atkinson@acu.edu](mailto:melissa.atkinson@acu.edu)), if additional library resources are needed for the course. Thank you for the opportunity to evaluate the syllabus and course proposal.



Dana Pemberton &lt;dlp94a@acu.edu&gt;

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## New Course

3 messages

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**Dana Pemberton** <dlp94a@acu.edu>  
To: David Hendricks <hendricksd@acu.edu>

Mon, Nov 18, 2019 at 1:57 PM

David,

We are taking the new education course in mathematics to council soon. The course title is EDUC 270: Conceptual Understanding and Procedural Fluency. I have included below a summary of history and conversation about this proposed new course.

1. The Teacher Education Department was concerned that MATH 120 does not target the mathematical skills and concepts needed by our elementary teacher candidates.
2. MATH 237 and MATH 238 were developed to align with the standards for these degrees.
3. MATH 120 was not always included for elementary education majors and was added as a prerequisite for MATH 237 primarily to ensure maturity of the learner. MATH 120 includes no prerequisite knowledge for MATH 237 or MATH 238. The only content in the course relevant for EC-6 majors is probability and statistics. We discussed adding sophomore standing as a prerequisite for MATH 237 and/or the new EDUC 270 course as a prerequisite.
4. EDUC 270 will include probability and statistics as part of the content. In addition, the course will focus on conceptual understanding of mathematics to prepare them better for MATH 237, MATH 238, EDUC 323 and EDUC 370 – the following courses that address mathematics for EC-6 candidates.

Please respond to affirm or add to the information above. Thank you for your support in our efforts to address specific deficits in our students' preparation in mathematics.

Dana

Dana Kennamer Pemberton, Ph.D.  
Associate Dean, College of Education and Human Services  
Professor and Chair of Teacher Education  
Abilene Christian University  
Abilene, TX 79699  
(325) 674-2112

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**David Hendricks** <hendricksd@acu.edu>  
To: Dana Pemberton <dlp94a@acu.edu>

Mon, Nov 18, 2019 at 4:33 PM

I affirm that this is a history of our conversation regarding the need for development of the EDUC 270 and that the Department of Mathematics is supportive of this change.

David

**Dr. David Hendricks**  
Associate Professor and Chair  
*Department of Mathematics*  
Abilene Christian University  
173 Onstead Science Center | ACU Box 28012 | Abilene, Texas 79699-8012