

**MEMORANDUM TO:** Ogden College of Science and Engineering Curriculum Committee

Dr. Katie Algeo  
Dr. Taha Alyousef  
Dr. Doug Harper  
Dr. Phil Lienesch  
Dr. Jeremy Maddox

Dr. Michelle Jackson  
Dr. Andy Mienaltowski  
Dr. Les Pesterfield  
Dr. Todd Willian

**FROM:** Kenneth Crawford, Chair

**SUBJECT:** Agenda for Thursday, December 6, 2018 4:00 p.m. in OCH 1022

**A. OLD BUSINESS:**

- I. Consideration of the minutes of the November 1, 2018 meeting.

**B. NEW BUSINESS:**

Type of item	Description of Item & Contact Information
Consent	<b>Proposal to Revise Course Prerequisites/Corequisites</b> AMS 490E, Senior Research for Manufacturing Engineering Technology, 3 hrs. Contact: Bryan Reaka, <a href="mailto:bryan.reaka@wku.edu">bryan.reaka@wku.edu</a> , x57032
Consent	<b>Proposal to Revise Course Prerequisites/Corequisites</b> AMS 490F, Senior Research for Technology Management, 3 hrs. Contact: Bryan Reaka, <a href="mailto:bryan.reaka@wku.edu">bryan.reaka@wku.edu</a> , x57032
Consent	<b>Proposal to Revise Course Prerequisites/Corequisites</b> CS 360, Software Engineering 1, 3 hrs. Contact: Michael Galloway, <a href="mailto:Jeffrey.galloway@wku.edu">Jeffrey.galloway@wku.edu</a> , x52859
Consent	<b>Proposal to Revise Course Prerequisites/Corequisites</b> MATH 183, Introductory Statistics, 3 hrs. Contact: Leslie Plumlee, <a href="mailto:leslie.plumlee@wku.edu">leslie.plumlee@wku.edu</a> , x56210
Action	<b>Proposal to Create a New Course</b> DATA 301, Big Data and Society, 3 hrs. Contact: Qi Li, <a href="mailto:qili@wku.edu">qili@wku.edu</a> , x56225
Action	<b>Proposal to Revise a Program</b> Ref. 528, Major in Mathematics, 51 hrs. Contact: Tom Richmond, <a href="mailto:tom.richmond@wku.edu">tom.richmond@wku.edu</a> , x56219
Action	<b>Proposal to Revise a Program</b> Ref. 728, Major in Mathematics, 36-39 hrs. Contact: Tom Richmond, <a href="mailto:tom.richmond@wku.edu">tom.richmond@wku.edu</a> , x56219
Action	<b>Proposal to Make Multiple Revision to a Course</b> PSYS 413, Psychological Measurement, 3 hrs. Contact: Andy Mienaltowski, <a href="mailto:Andrew.mienaltowski@wku.edu">Andrew.mienaltowski@wku.edu</a> , x52353

**C. OTHER BUSINESS**

**Members Present:**

Dr. Katie Algeo	Dr. Andy Mienaltowski
Dr. Doug Harper	Dr. Les Pesterfield
Dr. Phil Lienesch	Dr. Todd Willian
Dr. Jeremy Maddox	Guest: Leslie Plumlee
Dr. Melanie Autin for Dr. Michelle Jackson	Guest: David Oliver

**FROM:** Ken Crawford, Chair

The meeting was called to order at 4:00pm.

**OLD BUSINESS:**

Autin/Pesterfield moved to approve of the minutes of the October 4, 2018 meeting. Motion passed.

**NEW BUSINESS:**

**Consent Agenda**

No consent items.

**Action Agenda**

**Math Department**

Autin/Willian moved to approve Proposal to Create a New Course: MATH 099. Motion passed.

**Ogden College Dean's Office**

Maddox/Autin moved to approve Proposal to Create a New Course: EMDS 400. Motion passed with friendly amendment.

Willian/Harper moved to approve Proposal to Create a New Course: EMDS 401. Motion passed with friendly amendment.

Pesterfield/Maddox moved to approve Proposal to Create a New Course: EMDS 402. Motion passed with friendly amendment.

Autin/Maddox moved to approve Proposal to Create a New Course: EMDS 403. Motion passed with friendly amendment.

Pesterfield/Harper moved to approve Proposal to Create a New Course: EMDS 404. Motion passed with friendly amendment.

Autin/Willian moved to table Proposal Create a New Certificate Program: Emergency Management Disaster Science until several suggested corrections were made. The proposal was

tabled and the Committee agreed to bring the item back for an electronic vote prior to our next scheduled meeting. The Proposal to Create a New Certificate Program: Emergency Management Disaster Science was approved via an electronic meeting on 11/30/18.

**OTHER BUSINESS:**

Proposal Date: December 6, 2017

**Ogden College of Science and Engineering  
School of Engineering and Applied Sciences  
Proposal to Revise Course Prerequisites/Corequisites  
(Consent Item)**

Contact Person: Bryan Reaka, [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu), 270.745.7032

**1. Identification of course:**

- 1.1 Course prefix (subject area) and number: AMS 490E
- 1.2 Course title: Senior Research for Manufacturing Engineering Technology

**2. Current prerequisites/corequisites:**

- 1.1 Prerequisites: AMS 356 with a grade of “C” or better, AMS 390 with a grade of “C” or better, AMS 370 with a grade of “C” or better;
  - 1.1.1 Pre or co-requisites AMS 396, AMS 394

**3. Proposed prerequisites/corequisites:**

- 1.1 Prerequisites: AMS 356 with a grade of “C” or better, AMS 390 with a grade of “C” or better, AMS 370 with a grade of “C” or better;
  - 1.1.1 Pre or co-requisites AMS 394

**4. Rationale for the revision of prerequisites/corequisites:**

Due to lack of personnel, AMS 396 will no longer be offered within the School of Engineering and Applied Sciences. This pre/co-requisite change will reflect that AMS 396 will no longer be offered and still allow students to matriculate through the Manufacturing Engineering Technology program.

**5. Effect on completion of major/minor sequence:**

This will allow students to be able to continue on their appropriate matriculation through the Manufacturing Engineering Technology program.

**6. Proposed term for implementation: Fall 2018**

**7. Dates of prior committee approvals:**

School of Engineering and Applied Sciences	<u>11-9-2018</u>
Ogden College Curriculum Committee	_____
Undergraduate Curriculum Committee	_____
University Senate	_____

Proposal Date: October 22, 2018

**Ogden College of Science and Engineering  
School of Engineering and Applied Sciences  
Proposal to Revise Course Prerequisites/Corequisites  
(Consent Item)**

Contact Person: Bryan Reaka, [bryan.reaka@wku.edu](mailto:bryan.reaka@wku.edu), 270.745.7032

**1. Identification of course:**

- 1.1 Course prefix (subject area) and number: AMS 490F
- 1.2 Course title: Senior Research for Technology Managemnt

**2. Current prerequisites/corequisites:**

- 1.1 Prerequisites: AMS 356 with a grade of "C" or better, AMS 390 with a grade of "C" or better, AMS 370 with a grade of "C" or better;
  - 1.1.1 Pre or co-requisites AMS 394

**3. Proposed prerequisites/corequisites:**

- 1.2 Prerequisites: AMS 356 with a grade of "C" or better, AMS 390 with a grade of "C" or better;
  - 1.2.1 Pre or co-requisites AMS 394

**4. Rationale for the revision of prerequisites:**

Due to clerical error this prerequisite was inappropriately sent through the process with AMS 370 as a prerequisite for the AMS 490F course. AMS 490F is a capstone experience for Technology management majors who do not take AMS 370 as part of their curriculum.

This change is to correct the previous error.

**5. Effect on completion of major/minor sequence:**

This will allow students to be able to continue on their appropriate matriculation through the Technology Management program.

**6. Proposed term for implementation: Fall 2019**

**7. Dates of prior committee approvals:**

School of Engineering and Applied Sciences

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

11-09-2018

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/Proposal Date: 10/31/2018

**Ogden College  
School of Engineering and Applied Sciences  
Proposal to Revise Course Prerequisites  
(Consent Item)**

Contact Person: Michael Galloway, Jeffrey.galloway@wku.edu, 270-745-2859

- 1. Identification of course:**
  - 1.1 Course prefix (subject area) and number: CS 360
  - 1.2 Course title: Software Engineering 1
- 2. Current prerequisites: A grade of "C" or better in CS 221 and COMM 145**
- 3. Proposed prerequisites: (CS 221 with a "C" or better) or (CS 239 with a "B" or better or CS 180 with a "B" or better and EE 380 with a "C" or better) and COMM 145 with a "C" or better**
- 4. Rationale for the revision of prerequisites: Creating a path for Electrical Engineering Students to take Software Engineering.**
- 5. Effect on completion of major/minor sequence: Not applicable**
- 6. Proposed term for implementation: Fall 2019**
- 7. Dates of prior committee approvals:**

School of Engineering and Applied Sciences

11/9/18

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

Proposal Date: 11/16/2018

**Ogden College  
Department of Mathematics  
Proposal to Revise Course Prerequisites/Corequisites  
(Consent Item)**

Contact Person: Leslie Plumlee, leslie.plumlee@wku.edu, 270-745-6210

1. **Identification of course:**
  - 1.1 Course prefix (subject area) and number: MATH 183
  - 1.2 Course title: Introductory Statistics
2. **Current prerequisites/corequisites/special requirements:** Satisfactory score on Math ACT and MPE, or COMPASS or KYOTE; or DMA 096C with a grade of C or better
3. **Proposed prerequisites/corequisites/special requirements:** Satisfactory score on Math ACT and MPE, or COMPASS or KYOTE; or any Colonnade Quantitative Reasoning MATH course with a grade of C or better.
4. **Rationale for the revision of prerequisites/corequisites/special requirements:** DMA 095C will no longer be offered as of Fall 2019.
5. **Effect on completion of major/minor sequence:** Not Applicable
6. **Proposed term for implementation:** Fall 2019
7. **Dates of prior committee approvals:**

Department/ Unit: **Mathematics**

**11/16/2018**

**Ogden** College Curriculum Committee

Professional Education Council (if applicable)

General Education Committee (if applicable)

Undergraduate Curriculum Committee

University Senate

## Section 1: Proponent Contact Information

**1.1 Name/Title:** Qi Li/Associate Professor

**1.2 Email address:** qi.li@wku.edu

**1.3 Phone #** (270)7456225

## Section 2: Course Catalog Information

**2.1 Course prefix (subject area) and number:** DATA 301

**2.2 Course CIP code:** 11.0301

**2.3 Course title:** Big Data and Society

**2.4 Abbreviated Course title:** Big Data & Society

**2.5 Credit hours/Variable credit:** 3

**2.6 Repeatability:** N/A

**2.7 Course Term:** Single

**2.8 Course Catalog Description:** The course examines how an individual, company, or organization interacts with a system of big data from the aspects of i) data collection (policy and mechanism), ii) data protection, iii) data analytics, and iv) inference and decision making. Case studies of big data are offered, including its applications and implications in politics, social network, and humanities, etc.

**2.9 Prerequisite:** Completion of quantitative reasoning required by the Foundation of Colonnade, and 21 hours of Foundations & Explorations courses.

**2.10 Additional Enrollment Requirements:** N/A

**2.11 Other Special Course Requirements:** N/A

**2.12 Grade Type:** A-F

**2.13 Schedule Type:** Choose the most appropriate descriptor from this list of options:

Applied Learning	Applied Technique	Clinical	Co-op Education
Ensemble Performance	Independent Study	Internship	Lab
<u>Lecture</u>	Lecture/Lab	Matriculation Maintenance	Practicum
Research	Seminar	Student Teaching	Workshop

## Section 3: Description of proposed course



**3.1 Course Content Summary:** Students will understand the close interaction between big data and society. Big data and society cannot be understood separately, and big data is reshaping every aspect of our society, such as humanities, politics, public health, individual privacy, etc. Students will also understand the role of data analytics in big data. Data analysis is more than a tool. With the support of data analytics, people can create intelligent environments that reacts intelligently to presence and activities of human beings.

### **3.2 Learning Outcomes:**

Upon completion of the course, students will be able to

- Analyze how individuals, companies or organizations are engaging in the use of big data.
- Analyze how a system of big data evolves along with the development of technologies and the increasing influence on various areas.
- Analyze how technologies are integrated to build up the infrastructure of big data.
- Compare the study of data collection policy and the analysis of a data-driven decision making system.
- Specify the tradeoff between quantity and quality of data.
- Analyze benefits and challenges of using big data.
- Evaluate how context knowledge helps generate reasonable inference and personal or organizational decisions.
- Analyze the ethical implication of big data on society.

**3.3 Assessment/Evaluation:** Students will complete a series of homework assignments, group discussion assignments and written tests.

## **Section 4: Rationale**

**4.1 Reason for developing this proposed course:** The term big data was introduced from the discipline of Computer Science, while it has been widely used in many other disciplines. This course will give students experience to analyze how an individual and company/organization is interacted with a system of big data from multi-discipline perspectives. Students will learn how to apply qualitative reasoning and quantitative methods to examine interaction between big data and individuals, which in turn help them adapt to the transformative society.

**4.2 Relationship to similar courses offered by other university departments/units:** The Department of Computer Information Systems at WKU is offering CIS 205 as a Colonnade Connection course. This course exams of the impact of technology on businesses and societies, including ethical and social

impacts on professional and personal decision-making. Unlike CIS 205, the proposed course DATA 301 is focused on the examination of how data drives the transformative progress of a society, where technology is viewed as a component of a society that is in turn driven by the increasing value of big data. Computer science discipline, such as the distributed storage and parallel processing of big data, thus provides an indispensable perspective to achieve this study goal.

Northern Kentucky University (NKU) is offering DSC 421 titled by Big Data. This course is presented from the perspective of computer science discipline, such as storage and analysis of large-scale data, design of large-scale databases, and design of algorithms to analyze large data sets using parallelized processing tools. In contrast to DSC 421 at NKU, the proposed course DATA 301 presents a more systematic view on big data, including computer science discipline and social science discipline.

## **Section 5: Projected Enrollments/Resources**

### **5.1 How many students per section are expected to enroll in this proposed course?**

40

### **5.2 How many sections of this course per academic year will be offered?**

1

### **5.3 How many students per academic year are expected to enroll?**

40

### **5.4 How were these projections calculated? Explain any supporting evidence/data you have for arriving at these projections:** Big data has been quickly merging to different disciplines and there is a high demand of workforce on big data. For example, indeed, a online job hunting company, lists 64668 job on Sep 28, 2018.

5.5 Proposed method of staffing: Current staffing is sufficient.

5.6 Instructional technology resources: The unit's current instructional technology resources sufficient to support this course.

5.7 Library resources: This proposed course does not require the use of library resources.

## **Section 6: Proposed term for implementation:** Fall 2019

**Section 7: Supplemental Documentation (Optional):** If needed, append any supplemental documentation here.

**Dates of prior committee approvals:**

School of Engineering and Applied Sciences

11-09-2018

Ogden College Curriculum Committee

Undergraduate Curriculum Committee

University Senate

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**Proposal to Revise a program:** Major in Mathematics  
**Ogden College**  
**Department/Unit:** Mathematics

**Section 1: Proponent Contact Information**

1.1 Name/Title: Tom Richmond  
1.2 Email address: [tom.richmond@wku.edu](mailto:tom.richmond@wku.edu)  
1.3 Phone #: 745-6219

**Section 2: Program Information**

- 2.1 **Classification of Instructional Program (CIP) reference number:** 528
- 2.2 **Current Program title:** Major in Mathematics
- 2.3 **Current total number of credits required in the program:** 51

**Section 3: Proposed program revisions and rationales:**

**3.1 Adjust the computational requirement:** The old computational requirement could be met by CS 180 or CS 181. CS 181 is no longer offered and has been replaced by CS 221. We are updating the requirements to reflect this and adding STAT 330 as an option for the computational requirement.

**3.2 Remove the supporting logic requirement of PHIL 215 or EE 180:** PHIL 215 has been restructured into a new course PHIL 214 which is less applicable to mathematics. These PHIL courses may not be offered regularly. Mathematics majors are receiving adequate logic from within the department. This change only impacts the extended major.

**Section 4: Consultations:** The adjustment of the computational requirement was developed in consultation with CS faculty. The deletion of the supporting course PHIL215/EE180 requirement was motivated by changes in PHIL course offerings and has been discussed with and approved by the department head from Philosophy and Religion and the director of the School of Engineering and Applied Sciences.

**Section 5: Proposed term for implementation:** Fall 2019.

**Section 6: Approval Flow Dates:**

**Department of Mathematics:** November 16, 2018  
**Ogden College Curriculum Committee:**  
**Undergraduate Curriculum Committee:**  
**University Senate:**

## 7.1: Current BA in Mathematics

A major in mathematics provides a Bachelor of Arts degree and requires either a minimum of 36-39 semester hours for a general major with a minor or second major or a minimum of 51 semester hours for an extended major. Note: All mathematics courses listed as prerequisites for other mathematics courses must have been completed with a grade of "C" or better.

Students who wish to declare a 728 or 528 mathematics major will initially be designated as "seeking admission" until the following requirements have been satisfied:

- Complete MATH 136, MATH 137, and MATH 307 or MATH 310, with a grade of "C" or better in each course.
- Have an overall GPA of at least 2.4 in mathematics program courses (MATH 136 and above) completed prior to admission.

The general major (728) offers two options: (1) Non-teacher certifiable Major in Mathematics; (2) Major Certifiable for Teaching Secondary Level Mathematics. The extended major (528) offers only the first option. Option 1 students in the general major (728) are required to satisfy a computational requirement by completing either one course chosen from CS 180, CS 181, PHYS 316, or PHYS 318, while those in the extended major (528) are required to satisfy a computational requirement by completing ~~two courses chosen from CS 180, CS 181, MATH 371, PHYS 316, or PHYS 318.~~ [If MATH 371 is selected for this requirement, it cannot also be used as an elective in the extended major (528).] Option 2 students are required to complete either CS 170 or CS 180.

### Option 1: Non-Teacher Certifiable Major in Mathematics

**(A) General Major (728):** The student must complete a minimum of 39 hours of mathematics with a minor or second major giving a total of at least 59 hours (53 unduplicated) with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 498.
2. Two courses from: MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 482.
3. Six elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371, MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 475 (up to 6 hours), MATH 482.
4. Students may take certain 500-level mathematics courses for undergraduate credit with the approval of the Dept. Head in place of courses listed in items 2 or 3.
5. Note: This major is not intended to prepare students adequately for graduate mathematics. Students intending to seek a graduate degree should pursue major 528.

**(B) Extended Major (528):**

To prepare for graduate study in mathematics, the student must complete a minimum of 51 hours of mathematics with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 431, MATH 498.
2. Have a concentration in one of the following areas: B1, B2, or B3.

**B1: Fundamentals of Analysis and Discrete Mathematics:**

- i. MATH 417, MATH 439, MATH 450
- ii. Two courses from: MATH 315, MATH 323, MATH 415, MATH 423, MATH 473
- iii. Six additional elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482.

**B2: Fundamentals of Applied Mathematics**

- i. MATH 331, MATH 370, MATH 382, MATH 405.
- ii. Two courses from: MATH 305, MATH 406, MATH 435, MATH 470, MATH 482
- iii. Three credit hours from MATH 275, STAT 301, MATH 305, MATH 315, MATH 323, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 398, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 475, MATH 482.

**B3: Fundamentals of Mathematical Studies**

- i. MATH 450
- ii. Two courses from: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 470, MATH 473, MATH 482.
- iii. Twelve additional elective hours from MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482

3. Students may take certain 500-level mathematics courses for undergraduate credit in place of courses listed in items B1i, B1ii, B2i, B2ii, B3i, or B3ii with the approval of the mathematics department head. No minor or second major for the extended major is required.
4. ~~Also required is PHIL 215 or EE 180.~~

**Option 2: Major Certifiable for Teaching Secondary Level Mathematics General Certifiable Major (reference number 728):**

The student must complete a minimum of 36 hours of mathematics with a second major in Science and Mathematics Education (SMED) and with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 304, MATH 307, MATH 310, MATH 317, MATH 323, MATH 498; STAT 301. Before the “professional semester,” the student must complete each of these courses with a grade of “C” or better and achieve a GPA of at least 2.5 in required mathematics courses.
2. At least 3 hours of 400-level mathematics from the following list: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 421, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 482.

Students in this option must have a second major in science and mathematics education (SMED). In addition, students must attain a grade of “C” or better in each required mathematics course and a 2.5 GPA for all required mathematics courses.

## 7.1: Proposed BA in Mathematics

A major in mathematics provides a Bachelor of Arts degree and requires either a minimum of 36-39 semester hours for a general major with a minor or second major or a minimum of 51 semester hours for an extended major. Note: All mathematics courses listed as prerequisites for other mathematics courses must have been completed with a grade of "C" or better.

Students who wish to declare a 728 or 528 mathematics major will initially be designated as "seeking admission" until the following requirements have been satisfied:

- Complete MATH 136, MATH 137, and MATH 307 or MATH 310, with a grade of "C" or better in each course.
- Have an overall GPA of at least 2.4 in mathematics program courses (MATH 136 and above) completed prior to admission.

The general major (728) offers two options: (1) Non-teacher certifiable Major in Mathematics; (2) Major Certifiable for Teaching Secondary Level Mathematics. The extended major (528) offers only the first option. Option 1 students in the general major (728) are required to satisfy a computational requirement by completing one course chosen from CS 180, PHYS 316, or PHYS 318, while those in the extended major (528) are required to satisfy a computational requirement by completing two courses chosen from CS 180, CS 221, STAT 330, MATH 371, PHYS 316, or PHYS 318. [If MATH 371 is selected for this requirement, it cannot also be used as an elective in the extended major (528).] Option 2 students are required to complete either CS 170 or CS 180.

### **Option 1: Non-Teacher Certifiable Major in Mathematics**

**(A) General Major (728):** The student must complete a minimum of 39 hours of mathematics with a minor or second major giving a total of at least 59 hours (53 unduplicated) with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 498.
2. Two courses from: MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 482.
3. Six elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371, MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 475 (up to 6 hours), MATH 482.
4. Students may take certain 500-level mathematics courses for undergraduate credit with the approval of the Dept. Head in place of courses listed in items 2 or 3.
5. Note: This major is not intended to prepare students adequately for graduate mathematics. Students intending to seek a graduate degree should pursue major 528.



**(B) Extended Major (528):**

To prepare for graduate study in mathematics, the student must complete a minimum of 51 hours of mathematics with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 431, MATH 498.
2. Have a concentration in one of the following areas: B1, B2, or B3.

**B1: Fundamentals of Analysis and Discrete Mathematics:**

- iv. MATH 417, MATH 439, MATH 450
- v. Two courses from: MATH 315, MATH 323, MATH 415, MATH 423, MATH 473
- vi. Six additional elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482.

**B2: Fundamentals of Applied Mathematics**

- iv. MATH 331, MATH 370, MATH 382, MATH 405.
- v. Two courses from: MATH 305, MATH 406, MATH 435, MATH 470, MATH 482
- vi. Three credit hours from MATH 275, STAT 301, MATH 305, MATH 315, MATH 323, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 398, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 475, MATH 482.

**B3: Fundamentals of Mathematical Studies**

- iv. MATH 450
- v. Two courses from: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 470, MATH 473, MATH 482.
- vi. Twelve additional elective hours from MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482

3. Students may take certain 500-level mathematics courses for undergraduate credit in place of courses listed in items B1i, B1ii, B2i, B2ii, B3i, or B3ii with the approval of the mathematics department head. No minor or second major for the extended major is required.

**Option 2: Major Certifiable for Teaching Secondary Level Mathematics (General Certifiable Major (reference number 728):**

The student must complete a minimum of 36 hours of mathematics with a second major in Science and Mathematics Education (SMED) and with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 304, MATH 307, MATH 310, MATH 317, MATH 323, MATH 498; STAT 301. Before the “professional semester,” the student must complete each of these courses with a grade of “C” or better and achieve a GPA of at least 2.5 in required mathematics courses.
2. At least 3 hours of 400-level mathematics from the following list: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 421, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 482.

Students in this option must have a second major in science and mathematics education (SMED). In addition, students must attain a grade of “C” or better in each required mathematics course and a 2.5 GPA for all required mathematics courses.

**Proposal to Revise a program:** Major in Mathematics  
**Ogden College of Science & Engineering**  
**Department/Unit:** Mathematics

**Section 1: Proponent Contact Information**

- 1.1 Name/Title: Tom Richmond
- 1.2 Email address: [tom.richmond@wku.edu](mailto:tom.richmond@wku.edu)
- 1.3 Phone #: 745-6219

**Section 2: Program Information**

- 2.1 **Classification of Instructional Program (CIP) reference number:** 728
- 2.2 **Current Program title:** Major in Mathematics
- 2.3 **Current total number of credits required in the program:** 36-39

**Section 3: Proposed program revisions and rationales:**

- 3.1 **Adjust the computational requirement:** The old computational requirement could be met by CS 180 or CS 181. CS 181 is no longer offered and has been replaced by CS 221. We are updating the requirements to reflect this.

**Section 4: Consultations:** The adjustment of the computational requirement was developed in consultation with CS faculty.

**Section 5: Proposed term for implementation:** Fall 2019.

**Section 6: Approval Flow Dates:**

**Department of Mathematics:** November 16, 2018  
**Ogden College Curriculum Committee:**  
**Undergraduate Curriculum Committee:**  
**University Senate:**

## 7.1: Current BA in Mathematics

A major in mathematics provides a Bachelor of Arts degree and requires either a minimum of 36-39 semester hours for a general major with a minor or second major or a minimum of 51 semester hours for an extended major. Note: All mathematics courses listed as prerequisites for other mathematics courses must have been completed with a grade of "C" or better.

Students who wish to declare a 728 or 528 mathematics major will initially be designated as "seeking admission" until the following requirements have been satisfied:

- Complete MATH 136, MATH 137, and MATH 307 or MATH 310, with a grade of "C" or better in each course.
- Have an overall GPA of at least 2.4 in mathematics program courses (MATH 136 and above) completed prior to admission.

The general major (728) offers two options: (1) Non-teacher certifiable Major in Mathematics; (2) Major Certifiable for Teaching Secondary Level Mathematics. The extended major (528) offers only the first option. Option 1 students in the general major (728) are required to satisfy a computational requirement by completing ~~either one course chosen from CS 180, CS 181, PHYS 316, or PHYS 318,~~ while those in the extended major (528) are required to satisfy a computational requirement by completing two courses chosen from CS 180, CS 181, MATH 371, PHYS 316, or PHYS 318. [If MATH 371 is selected for this requirement, it cannot also be used as an elective in the extended major (528).] Option 2 students are required to complete either CS 170 or CS 180.

### **Option 1: Non-Teacher Certifiable Major in Mathematics**

**(A) General Major (728):** The student must complete a minimum of 39 hours of mathematics with a minor or second major giving a total of at least 59 hours (53 unduplicated) with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 498.
2. Two courses from: MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 482.
3. Six elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371, MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 475 (up to 6 hours), MATH 482.
4. Students may take certain 500-level mathematics courses for undergraduate credit with the approval of the Dept. Head in place of courses listed in items 2 or 3.
5. Note: This major is not intended to prepare students adequately for graduate mathematics. Students intending to seek a graduate degree should pursue major 528.

**(B) Extended Major (528):**

To prepare for graduate study in mathematics, the student must complete a minimum of 51 hours of mathematics with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 431, MATH 498.
2. Have a concentration in one of the following areas: B1, B2, or B3.

**B1: Fundamentals of Analysis and Discrete Mathematics:**

- i. MATH 417, MATH 439, MATH 450
- ii. Two courses from: MATH 315, MATH 323, MATH 415, MATH 423, MATH 473
- iii. Six additional elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482.

**B2: Fundamentals of Applied Mathematics**

- i. MATH 331, MATH 370, MATH 382, MATH 405.
- ii. Two courses from: MATH 305, MATH 406, MATH 435, MATH 470, MATH 482
- iii. Three credit hours from MATH 275, STAT 301, MATH 305, MATH 315, MATH 323, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 398, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 475, MATH 482.

**B3: Fundamentals of Mathematical Studies**

- i. MATH 450
- ii. Two courses from: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 470, MATH 473, MATH 482.
- iii. Twelve additional elective hours from MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482

3. Students may take certain 500-level mathematics courses for undergraduate credit in place of courses listed in items B1i, B1ii, B2i, B2ii, B3i, or B3ii with the approval of the mathematics department head. No minor or second major for the extended major is required.
4. Also required is PHIL 215 or EE 180.

**Option 2: Major Certifiable for Teaching Secondary Level Mathematics General Certifiable Major (reference number 728):**

The student must complete a minimum of 36 hours of mathematics with a second major in Science and Mathematics Education (SMED) and with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 304, MATH 307, MATH 310, MATH 317, MATH 323, MATH 498; STAT 301. Before the "professional semester," the student must complete each of these courses with a grade of "C" or better and achieve a GPA of at least 2.5 in required mathematics courses.
2. At least 3 hours of 400-level mathematics from the following list: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 421, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 482.

Students in this option must have a second major in science and mathematics education (SMED). In addition, students must attain a grade of "C" or better in each required mathematics course and a 2.5 GPA for all required mathematics courses.

## 7.1: Proposed BA in Mathematics

A major in mathematics provides a Bachelor of Arts degree and requires either a minimum of 36-39 semester hours for a general major with a minor or second major or a minimum of 51 semester hours for an extended major. Note: All mathematics courses listed as prerequisites for other mathematics courses must have been completed with a grade of "C" or better.

Students who wish to declare a 728 or 528 mathematics major will initially be designated as "seeking admission" until the following requirements have been satisfied:

- Complete MATH 136, MATH 137, and MATH 307 or MATH 310, with a grade of "C" or better in each course.
- Have an overall GPA of at least 2.4 in mathematics program courses (MATH 136 and above) completed prior to admission.

The general major (728) offers two options: (1) Non-teacher certifiable Major in Mathematics; (2) Major Certifiable for Teaching Secondary Level Mathematics. The extended major (528) offers only the first option. Option 1 students in the general major (728) are required to satisfy a computational requirement by completing one course chosen from CS 180, PHYS 316, or PHYS 318, while those in the extended major (528) are required to satisfy a computational requirement by completing two courses chosen from CS 180, CS 221, STAT 330, MATH 371, PHYS 316, or PHYS 318. [If MATH 371 is selected for this requirement, it cannot also be used as an elective in the extended major (528).] Option 2 students are required to complete either CS 170 or CS 180.

### **Option 1: Non-Teacher Certifiable Major in Mathematics**

**(A) General Major (728):** The student must complete a minimum of 39 hours of mathematics with a minor or second major giving a total of at least 59 hours (53 unduplicated) with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 498.
2. Two courses from: MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 482.
3. Six elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371, MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 475 (up to 6 hours), MATH 482.
4. Students may take certain 500-level mathematics courses for undergraduate credit with the approval of the Dept. Head in place of courses listed in items 2 or 3.
5. Note: This major is not intended to prepare students adequately for graduate mathematics. Students intending to seek a graduate degree should pursue major 528.

**(B) Extended Major (528):**

To prepare for graduate study in mathematics, the student must complete a minimum of 51 hours of mathematics with the following requirements:

1. MATH 136, MATH 137, MATH 237, MATH 307, MATH 310, MATH 317, MATH 337, MATH 431, MATH 498.
2. Have a concentration in one of the following areas: B1, B2, or B3.

**B1: Fundamentals of Analysis and Discrete Mathematics:**

- iv. MATH 417, MATH 439, MATH 450
- v. Two courses from: MATH 315, MATH 323, MATH 415, MATH 423, MATH 473
- vi. Six additional elective hours from: MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482.

**B2: Fundamentals of Applied Mathematics**

- iv. MATH 331, MATH 370, MATH 382, MATH 405.
- v. Two courses from: MATH 305, MATH 406, MATH 435, MATH 470, MATH 482
- vi. Three credit hours from MATH 275, STAT 301, MATH 305, MATH 315, MATH 323, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 398, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 450, MATH 470, MATH 473, MATH 475, MATH 482.

**B3: Fundamentals of Mathematical Studies**

- iv. MATH 450
- v. Two courses from: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 423, MATH 435, MATH 439, MATH 470, MATH 473, MATH 482.
- vi. Twelve additional elective hours from MATH 275 (up to 3 hours), STAT 301, MATH 305, MATH 315, MATH 323, MATH 331, MATH 370, MATH 371 (provided MATH 371 was not used to satisfy the computational requirement), MATH 382, MATH 398 (up to 3 hours), MATH 405, MATH 406, MATH 409, MATH 415, MATH 423, MATH 435, MATH 470, MATH 473, MATH 475 (up to 6 hours), MATH 482

3. Students may take certain 500-level mathematics courses for undergraduate credit in place of courses listed in items B1i, B1ii, B2i, B2ii, B3i, or B3ii with the approval of the mathematics department head. No minor or second major for the extended major is required.

**Option 2: Major Certifiable for Teaching Secondary Level Mathematics General Certifiable Major (reference number 728):**

The student must complete a minimum of 36 hours of mathematics with a second major in Science and Mathematics Education (SMED) and with the following requirements:



1. MATH 136, MATH 137, MATH 237, MATH 304, MATH 307, MATH 310, MATH 317, MATH 323, MATH 498; STAT 301. Before the "professional semester," the student must complete each of these courses with a grade of "C" or better and achieve a GPA of at least 2.5 in required mathematics courses.
2. At least 3 hours of 400-level mathematics from the following list: MATH 405, MATH 406, MATH 409, MATH 415, MATH 417, MATH 421, MATH 423, MATH 431, MATH 435, MATH 439, MATH 450, MATH 470, MATH 482.

Students in this option must have a second major in science and mathematics education (SMED). In addition, students must attain a grade of "C" or better in each required mathematics course and a 2.5 GPA for all required mathematics courses.

**Ogden College of Science & Engineering  
Psychological Sciences Department  
Proposal to Make Multiple Revisions to a Course  
(Action Item)**

Contact Person: Andy Mienaltowski, 5-2353, andrew.mienaltowski@wku.edu

- 1. Identification of course:**
  - 1.1 Current course prefix (subject area) and number: **PSYS 413**
  - 1.2 Course title: **Psychological Measurement**
  
- 2. Revise course title:**
  - 2.1 Current course title:
  - 2.2 Proposed course title:
  - 2.3 Proposed abbreviated title:
  - 2.4 Rationale for revision of course title:
  
- 3. Revise course number:**
  - 3.1 Current course number:
  - 3.2 Proposed course number:
  - 3.3 Rationale for revision of course number:
  
- 4. Revise course prerequisites/corequisites/special requirements:**
  - 4.1 Current prerequisites/corequisites/special requirements: (indicate which)
  - 4.2 Proposed prerequisites/corequisites/special requirements:
  - 4.3 Rationale for revision of course prerequisites/corequisites/special requirements:
  - 4.4 Effect on completion of major/minor sequence:
  
- 5. Revise course catalog listing:**
  - 5.1 Current course catalog listing: The consideration of methodological, theoretical, and ethical problems involved in test construction and use. Topics covered include reliability, validity, predictive efficiency, structure of human abilities, achievement tests, and projective techniques.
  
  - 5.2 Proposed course catalog listing: **The consideration of methodological, theoretical, and ethical problems involved in test construction and use. Topics covered include reliability, validity, and measurement theory. Includes lab-based projects such as test construction and item analysis.**
  
  - 5.3 Rationale for revision of course catalog listing: Class involves project-based learning in a lab environment. The new course catalog listing reflects this content.
  
- 6. Revise course credit hours:**
  - 6.1 Current course credit hours:
  - 6.2 Proposed course credit hours:
  - 6.3 Rationale for revision of course credit hours:

7. **Revise schedule type:**  
7.1 Current schedule type: L (lecture)  
7.2 Proposed schedule type: **C (lecture/lab)**  
7.3 Rationale for revision of schedule type: The new schedule type better reflects that project-based nature of the course.

8. **Revise grade type:**  
8.1 Current grade type:  
8.2 Proposed grade type:  
8.3 Rationale for revision of grade type:

10. **Proposed term for implementation:** Earliest possible

11. **Dates of prior committee approvals:**

Department of Psychological Sciences  
Ogden College Curriculum Committee  
Undergraduate Curriculum Committee  
University Senate

November 2, 2018  
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