

# MIDDLE LEVEL MATHEMATICS CAPSTONE

MATH 306 | WINTER QUARTER 2021

## **INSTRUCTOR:**

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## **COURSE DESCRIPTION:**

Middle-level Mathematics graduates must know a broad range of mathematical concepts and be fluent with numerous skills. This course will require teacher candidates to demonstrate conceptual knowledge and procedural proficiency using a variety of methods. Prerequisites of MATH 130 and MATH 154.

## **COURSE RATIONALE**

This on-line course is especially designed to enable students to reflect on the knowledge and skills they have learned and make connections to knowledge they will need to know well enough to teach. Most of the mathematics courses that you have taken for the past three years are beyond what you will teach. These courses are important for your development as a mathematics professional but you may not have made the connections between these advanced topics and the high school curriculum needed to be an effective mathematics teacher. Use this course to review the broad range of concepts and skills important to secondary mathematics teachers which will enable you to pass the NES mathematics exam.

## **COURSE OBJECTIVES**

By the end of the course, students will be able to:

Outcomes	Assessment	Standards
Number Sense and Operations	On-line quizzes and exams	WA 1 and 2
Algebra and Functions	On-line quizzes and exams	WA 1, 3, 6, and 7
Geometry and Measurement	On-line quizzes and exams	WA 1 and 4
Relations and Functions	On-line quizzes and exams.	WA 1, 3, and 7
Statistics, Probability, and Discrete Mathematics	On-line quizzes and exams	WA 1, 5, and 7
Self Assess and Guide Ones Learning	Written self assessments and Growth Plans	WA 1, 7, and 10
showcase a creative synthesis of program work	Written reflection on works done, video using diagram explaining the program, survey evaluating the program	

## **COURSE RESOURCES**

**Canvas.** Check course announcements, messages, due dates, assignments and feedback before *each* class. If you are new to Canvas, [instructions](#) are available. Read Home page of the CANVAS MATH 306 course before starting the course.

**Textbook.** No Text Book

## **ASSIGNMENTS AND EVALUATION GUIDELINES**

The instructional and assessment strategies for this course are designed to inform you of your progress in achieving the performance outcomes. The instructors will give you feedback on your progress in meeting performance outcomes.

Assignment	Points
Objective Quizzes (5 points x 12 quizzes)	60 possible at 23%
Review Quizzes taken if Objective Quiz not passed (30 point average x 12 quizzes)	360 possible at 30%
NES Practice Exam (75 points and maybe retaken)	75 possible at 30%
Reflection on the Major, Course Milestones and NES Study Record	240 possible at 17%

## **COURSE ACTIVITIES**

**First review the Middle Level Mathematics BA reflection assignments and complete the by mid-quarter.**

**Second review the information about the NES Mathematics exam** and then how to use this course to review and understand the 53 competencies. Also, read the information about test anxiety, this information is not to scare you, but rather to enable you to competently and confidently prepare to take this exam. Knowing that you are prepared for an exam is so important for doing your best on this exam. After you have read the beginning information take the "Preparing to take the NES exam" quiz. You need a score of 8 out of the 10 questions to progress to Objective 1. If you do not score at least an 8 on the quiz, review the questions you got incorrect and retake the quiz until you score at least an 8.

Next work through each of the 12 objectives using the following procedure:

1. Review the competencies for the objective.
2. Take the objective quiz. You have 10 minutes to answer the five questions, which is the pace required to finish the NES exam. These five questions address each of the competencies, thus in total represent a sample of the NES exam. If you score at least 4 out of 5 on the quiz, you pass that objective and may progress onto the next objective. You only get one attempt at the quiz, but you can review the quiz and your responses as many times as you want.
3. If you do not score at least 4 out of 5, you need to review the knowledge and skills page which gives information about each of these competencies. Then take the review quiz and score about 95% on the review quiz (each quiz has a set score required). Keep reviewing and taking the review quizzes until you pass the review quiz.
4. After you have completed all 12 objectives, review your "NES Study Record" and take the practice NES exam. You have 2 hours to complete the 75 questions on the sample NES Exam and must answer 55 questions correct. If you do not pass the practice NES exam, record the questions you answered incorrectly on your "NES Study Record" and take the second practice NES exam. To pass the NES exam you need to get about 55% of the questions correct and I am expecting you to take a half an exam and get about 73% of the questions correct. I do this because it is always better to plan big and not take the exam for granted. So even if you do not pass the second exam with a 73% I will make sure that you earn at least a C+ if you earn a 49 on at least one of the NES practice exams.

### **NES Study Record**

The most **important step** you must consistently do during this review is record the questions you answer incorrectly and evaluate your understanding of the knowledge and skills required to answer this question. I have provided a "NES Study Record" document for you to print and use for completing this course. ***(Most students will need to use two of these documents.)*** After you take the objective quiz, you will be able to see which questions you answered correctly and which questions you answered incorrectly. Explanations for answering the questions will appear for questions answered incorrectly. Whether you passed the quiz or did not pass the quiz, complete the "Study Record" for the questions you answered incorrectly. This process ensures that you are identifying mathematics knowledge and skills that you need to review and thus understand all 53 competencies required.

Steps for completing the "NES Study Record," record the following information for each question answered incorrectly:

1. Objective
2. Skill or knowledge
3. Reason for incorrect answer (Did not understand the question. Made a simple mistake. Do not understand the concept or skill.)
4. Similar problem answered correctly

### **Earning a good grade in MATH 306 while reviewing the mathematics knowledge and skills required for the NES**

**Mathematics exam.** There are 150 questions on the NES exam so there are about about two questions per competency on the exam, therefore, after completing all objective quizzes you have sampled most of the question topics on the exam. To reward students who are using the course to correctly they can earn points by review all the mathematic problems they miss and by achieving the milestones. Students who complete the milestones earn 10 bonus points for each milestone achieved. Also, by uploading a completed "NES Study Record" you can earn up to 30 points (remember I have a record of the questions you answered incorrectly). Here is how this works to your advantage, if you complete all the exams at 80%, practice NES exam at 75%, earn all 80 milestone bonus points, and 30 bonus points for a complete NES Study Record you would earn 90%. Many of the review quizzes a larger and worth more points that is why they are weighted less. Even if you pass the objective quizzes you can take the review quizzes to increase your grade (review quizzes can be taken multiple times to increase your score).

Each week will require anywhere from an hour to eight hours depending on how much review is required, so plan your week around meeting the milestones below. You can work ahead if you like and make sure that you contact your instructor by e-mail if you find mistakes in the course materials or if you need help with a mathematics topic. The instructor can help you in person or by using on-line resources.

**Milestones (Complete/Pass) by 10 AM each week. Each milestone is worth 10 bonus points.**

#### **When to take the NES exam**

Your application for spring student teaching is due October 1 and on that application you must verify that you have registered for the NES exam. So during the first week of this course register for the NES Middle Grade Mathematics Exam (203) and plan a test date as soon after completing the course as possible. Almost all of the questions and examples came out of resources for preparing for the NES exam, so below I will give credit to these resources and to let you know that most of the material for this course is not my own but adapted from these great resources

#### **References**

- ExamEdge.com, [www.examedge.com](http://www.examedge.com) (Links to an external site.)
- Mometrix Test Preparation, 2019, NES Middle Grades Mathematics, National Evaluation Series, USA
- Trivium Test Prep , 2017, NES Middle Grades Mathematics Study Guide, USA

#### **GRADING SCALE**

93-100% = A, 90-93% = A-, 87-90% = B+, 83-87% = B, 80-83% = B-, 77-80% = C+, 73-77% = C, 70-73% = C-, 67-70% = D+, 63-67% = D, 60-63% = D-, 0-60% = F Please see the CWU Catalog for the eligibility requirements for an incomplete (I).

#### **PERFORMANCE EXPECTATIONS**

All of the assignments and directions can be found in the CANVAS menu. If you are struggling with the course content or on-line procedures, please contact your instructor to get help.

#### **COURSE POLICIES**

##### **Instructor Feedback/Communication**

Send me e-mails, phone calls, or visit me in my office if you would like to talk about the course or course content. I will use the Announcements tool in CANVAS to communicate changes to the course and other course information.

##### **Suggestions for Success**

Take the responsibility for your own achievement of these performance objectives. You can get individual help by e-mail or in person in my office. If at any time you have trouble-using CANVAS or do not understand an assignment make sure to contact the instructor. Use the activities, videos, quizzes, and tests to insure that you understand the mathematical concepts and can demonstrate this understanding in the form of the on-line assessments.

##### **Student Feedback/Communication**

I welcome all feedback on the course. My preferred method of communication with individual students is via email. I am also available for office hours . If you experience a legitimate emergency (according to my standards), which will prevent you from completing required coursework on time, I expect you to communicate with me at the earliest reasonable opportunity. Please state the nature of the emergency, and when you expect to turn in the coursework.

##### **Submitting Electronic Files**

All electronic files must be submitted in .doc or .pdf format. If you do not have Microsoft Word, you can download Open Office Writer for free at <http://www.openoffice.org/>. This will allow you to open the instruction files, make changes and save in .doc or .pdf.

##### **Late Work**

Late work is permitted but you are rewarded for pacing yourself in this course.

#### **STUDENT SUCCESS**

Multiple resources are available to help students move past challenges and become academically successful.

##### **Academic Success Center**

The CWU Academic Success Center helps students learn strategies that can increase GPA and improve course pass rates. All services are available online via Zoom unless otherwise noted. Expanded hours are available to meet student

need. To access, go to [www.cwu.edu/asc](http://www.cwu.edu/asc) or <https://tutortrac.cwu.edu>, use your CWU login and password, and click the **Schedule an Appointment** link.

### **Tutors**

Several forms of peer tutoring are available. All Canvas courses include a direct link to a tutoring resources page. The PALS program pairs a trained tutor with a faculty member to promote learning strategies and content comprehension in specific courses. eTutoring allows students to get online help in 15 subjects with expanded hours of 5am-midnight, 7 days per week. To access, students visit [www.etutoringonline.org](http://www.etutoringonline.org), select CWU, and request a password link be sent to their CWU email address. A list of subjects is available at <https://www.cwu.edu/academic-success/online-tutoring/online-tutoring>

### **Academic Coach**

Students can work one-on-one with an [academic coach](#) in individualized sessions that focus on building academic strength. Students can improve time management, develop a study plan, unpack how to process new information for deep understanding, increase reading and comprehension skills, and more. Coaches help students discover learning best strategies, maximize academic experiences, and reduce stress.

### **Writing Center**

Learning to write well can be a difficult skill set to develop, a process made easier via targeted feedback via the [CWU Writing Center](#). Students submit papers for review and receive detailed video comments from writing consultants in various disciplines. Students can also request a phone consult. Best results are achieved when students plan early for multiple rounds of feedback and revision.

### **Math Center**

Learning mathematics is challenging for many students. Students who struggle with math can access the [CWU Math Center](#). Students can connect with a math tutor for live help sessions that deal with all Quantitative Reasoning, 100-level, and other math courses. Zoom meetings, whiteboards, and other tools are used to promote deeper understanding of mathematics.

## **UNIVERSITY POLICIES**

### **Academic Honesty**

Consult university policies ([CWUP 5-90-040\(22\)](#), [CWUR 2-90-040\(22\)](#), and [WAC 106-125-020](#)) for student conduct, cheating, plagiarism, and other academic expectations. CWU's policies and recommendations for academic misconduct will be followed, leading to disciplinary action up to and including failing the course.

### **Diversity**

As a member of a peer learning community, a high degree of professionalism is necessary. **CWU expects every member of the university community to contribute to an inclusive and respectful classroom culture.**

### **Disability Support Services**

Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations: Hogue Hall 126, [509.963.2214](tel:509.963.2214), [DS@cwu.edu](mailto:DS@cwu.edu)

### **Religious Holiday Absences - Is my absence excused?**

Excused absences will not lower your overall grade in this class and are determined on a case-by-case basis. In compliance with RCW 28B.137.010, Central Washington University makes every effort to deal reasonably and fairly with students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Students must present written notice to their instructor within the first two weeks of class listing the specific dates on which accommodations are required. Contact the Dean of Student Success at [\(509\) 963-1515](tel:509.963.1515) for further information or questions.