MTH107 Finite Mathematics
Winter 2023 (Online)

Instructor: Juhyung Lee
Email: juhyung@uri.edu

Email Policy: Only URI email account should be used for communication

Office Hours: M-F from 8:00 am to 9:00 am or by appointment on Zoom. At this time, there will be no in person meetings in the instructor’s office. You can find a link to join a zoom meeting on Brightspace → START HERE → Instructor Information

Website: Brightspace is the online learning platform used for URI

Text: Johnson / Mowry, Mathematics: A Practical Odyssey, URI custom edition (Not required)

Calculator: You may use a basic calculator on quizzes, homework, or exams. But, a graphing or scientific calculator (e.g. TI-84) is not permitted on exams

Technology requirements: To successfully complete this course, you will need access to a computer with reliable, high-speed Internet access and appropriate system and software to support the Brightspace learning platform. You should have the ability to upload your handwritten work as a single pdf document. (See Appendix A)

Grade Categories and Scale: Grades will be determined through a weighted average with categories and weights:

<table>
<thead>
<tr>
<th>Categories</th>
<th>Weights</th>
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<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam I</td>
<td>20 %</td>
<td>Worksheet</td>
<td>30 %</td>
</tr>
<tr>
<td>Exam II</td>
<td>20 %</td>
<td>Final</td>
<td>30 %</td>
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Letter grades for the course will be determined by considering your overall weighted percentage according to the following scale:

<table>
<thead>
<tr>
<th>Scale (%)</th>
<th>Grade</th>
<th>87-89.99</th>
<th>B+</th>
<th>77-79.99</th>
<th>C+</th>
<th>67-69.99</th>
<th>D+</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
<td>83-86.99</td>
<td>B</td>
<td>73-76.99</td>
<td>C</td>
<td>60-66.99</td>
<td>D</td>
</tr>
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e-Campus Course Description: Concepts and processes of modern mathematics concerned with sets, the theory of probability, and statistics. Role of these concepts in today’s social and physical sciences.

Prerequisites: Passing a placement test. Not open to mathematics majors.

Description: MTH 107 is a special topics course that satisfies the general education requirement for math at the University of Rhode Island. This course is designed for students who do NOT have precalculus or calculus requirements in their program of study. MTH 107 covers the following

Health-Related Policies: The University is committed to delivering its educational mission while protecting the health and safety of our community. While the university has worked to create a healthy learning environment for all, it is up to all of us to ensure our campus stays that way. As members of the URI community, students are required to comply with standards of conduct and take precautions to keep themselves and others safe. Visit web.uri.edu/coronavirus/ for the latest information about the URI COVID-19 response.

• It is highly recommended that all community members wear a mask and maintain physical distance.
• Students who are experiencing symptoms of illness should not come to class. Please stay in your home/room and notify URI Health Services via phone at 401-874-2246.
• If you are already on campus and start to feel ill, go home/back to your room and self-isolate. Notify URI Health Services via phone immediately at 401-874-2246.

If you are unable to attend class, please notify me prior to the start of class using juhyung@uri.edu

Lecture: The lecture videos will be uploaded to Brightspace. You are required to watch the lecture videos according to the course calendar.

Virtual Meeting: Zoom will be used for a virtual meeting on M-F from 8:00 am to 9:00 am. You are encouraged to prepare some questions and actively participate in the meeting.

Worksheet: A worksheet homework will be assigned every M-Th, with some exceptions. Scan your handwritten solutions and answers as single pdf document and upload it to Brightspace before it closes. The two worksheets with the lowest score will be dropped in calculating your course grade. Make up homework will not be given for any reason. If you miss a worksheet (even with a valid reason) it will count towards those two dropped homework.

Exams: Exam I, II, and the final comprehensive exam will be held as scheduled. Please, see the course calendar for details. You may use a basic calculator (+, −, ×, ÷, and square root) on exams.

Any questions or concerns regarding your course grade should be discussed well before the final exam. Once the final exam is administered, your grade is final and no makeups or extra credit will be offered. Additionally, an incomplete grade will not be given to students who are dissatisfied with their grades at the end of the semester.

Academic Integrity: Students are expected to be honest in all academic work. A student’s name on any written work, quiz or exam shall be regarded as assurance that the work is the result of the student’s own independent thought and study. Work should be stated in the student’s own words, properly attributed to its source. Students have an obligation to know how to quote, paraphrase, summarize, cite and reference the work of others with integrity. The following are examples of academic dishonesty.

• Using material, directly or paraphrasing, from published sources (print or electronic) without appropriate citation
• Claiming disproportionate credit for work not done independently
• Unauthorized possession or access to exams
• Unauthorized communication during exams
• Unauthorized use of another’s work or preparing work for another student
• Taking an exam for another student
• Altering or attempting to alter grades
- The use of electronic devices to gain an unauthorized advantage during exams
- Fabricating or falsifying facts, data or references
- Facilitating or aiding another's academic dishonesty
- Submitting the same paper for more than one course without prior approval from the instructors

**Makeup Policy:** Makeup exams may be scheduled in the event you are unable to attend exams under the following conditions. See University Manual sections 8.51.10 to 8.51.14 for guidelines.
- If your reason for missing the exam as scheduled is (i) a University sanctioned event for which verifiable documentation can be provided, (ii) a responsibility to an employer that cannot be rescheduled (with documentation from your employer), or (iii) Religious holidays, then you must inform your instructor 48 hours in advance of the exam and provide documentation if requested. Makeup exams will be scheduled after the actual exam, and preferably before the class period when exams are to be handed back, but no later than one week after the original date.
- If the reason for missing the exam as scheduled is due to (i) illness (with verifiable documentation from a medical provider if requested), or (ii) an emergency (with appropriate documentation if requested), then you must contact your instructor within 24 hours of the exam. Makeup exams may be scheduled no later than a week after the original date, unless the illness or emergency precludes this, in which case we will follow the University Manual sections 8.51.10 to 8.51.14.
- Failure to notify your instructor within 7 calendar days of your absence will result in a 0 for the exam, see section 8.51.14 University Manual.

**Anti-Bias Syllabus Statement:** We respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive. If you are a target or a witness of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at www.uri.edu/brt. There you will also find people and resources to help.

**Disability Services for Students Statement:** Your access in this course is important. Please send me your Disability Services for Students (DSS) accommodation letter early in the semester so that we have adequate time to discuss and arrange your approved academic accommodations. If you have not yet established services through DSS, please contact them to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom. DSS can be reached by calling: 401-874-2098, visiting: web.uri.edu/disability, or emailing: dss@etal.uri.edu.
# Learning Outcomes

<table>
<thead>
<tr>
<th>MSC Rubric Elements:</th>
<th>STEM Rubric Elements:</th>
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<tbody>
<tr>
<td>A.1. Finds The Necessary Information</td>
<td>1. Identifies facts, Vocabulary, definitions, terms, concepts, people</td>
</tr>
<tr>
<td>A.2. Make a Plan For How To Solve The Problem</td>
<td>2. Recognizes concepts or tools relevant for application to a task</td>
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<tr>
<td>B.1. Performs the Calculation Or Analysis</td>
<td>5. Analyzes: Applies concepts to address the task</td>
</tr>
<tr>
<td>B.2. Checks the Answer For Accuracy</td>
<td>6. Analyzes: Deconstructs and contextualizes</td>
</tr>
<tr>
<td>C.1. Explains The Steps Taken</td>
<td>7. Analyzes: Evaluates and justifies</td>
</tr>
<tr>
<td>C.2. Articulates The Solution</td>
<td></td>
</tr>
<tr>
<td>C.3. Presents The Problem And Solution In An Organized, Clear,</td>
<td></td>
</tr>
<tr>
<td>and Concise Manner</td>
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</table>

**MTH 107 satisfies the MSC and STEM rubrics (full coverage) for general education.** At the end of the course the student should be able to:

1. Distinguish an argument from other forms of verbal expression recognizing their premises and conclusions.  
   RUBRIC ELEMENTS: Stem 1, Stem 6, Stem 7, A1, C1, C2, C3

2. Recognize valid and invalid, sound and unsound, syllogistic argument forms.  
   RUBRIC ELEMENTS: Stem 1, Stem 6, Stem 7, A1, C1, C2, C3

3. Detect contradictions and lack of consistency among the premises of an argument.  
   RUBRIC ELEMENTS: Stem 5, Stem 6, Stem 7, C1, C2, C3

4. Represent propositions symbolically using variables and logic connectives.  
   RUBRIC ELEMENTS: Stem 1, Stem 2, A2, C2, C3

5. Give precise logical meanings of the logical connectives: not, and, or, if, only if, equivalent  
   RUBRIC ELEMENTS: Stem 2, Stem 6, A2, C1, C2, C3

6. Parse a statement to detect the linguistic equivalent of parentheses.  
   RUBRIC ELEMENTS: Stem 5, A2

7. Build a Truth Table to evaluate a statement.  
   RUBRIC ELEMENTS: Stem 2, Stem 6, A2, B1, B2, C1, C2, C3

8. Use the concept of “set” and “member” to represent relationships between objects and ideas.  
   RUBRIC ELEMENTS: Stem 1, Stem 2, A1

9. Reproduce key definitions used in set theory: negation, intersection, union, and subset.
10. Determine the number of items in a set by counting in new and different ways using factorials, combinations, and permutations.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, A1, A2, B1, B2, C1, C2, C3

11. Use a Venn diagram to visually represent sets and facilitate counting.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, A2, B1, B2, C1, C2, C3

12. Calculate any probability given the cardinality of the appropriate sets involved.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, B1, B2, C1, C2, C3

13. Calculate simple, conditional, and joint probabilities by counting the members in the appropriate sets.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, A2, B1, B2, C1, C2, C3

14. Apply rules of probability to real world situations like medical tests and casino games.
   RUBRIC ELEMENTS: Stem 5, Stem 6, B1, B2, C1, C2, C3

15. Recognize simple random processes (like dice rolling etc...) and calculate their expected value.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, A1, B1, B2, C1, C2, C3

16. Draw a histogram to represent a set of data.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, A2, C1, C2, C3

17. Calculate the mean, median, mode, standard deviation, and variance of a data set which is either grouped or ungrouped.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, B1, B2, C1, C2, C3

18. Determine z-scores and use a normal distribution table to solve problems involving data that is normally distributed.
   RUBRIC ELEMENTS: Stem 1, Stem 2, Stem 5, Stem 6, Stem 7, B1, B2, C1, C2, C3

Academic Enhancement Center: Located in Roosevelt Hall, the AEC offers free face to face and web-based services to undergraduate students seeking academic support. Peer tutoring is available for STEM-related courses through drop-in centers and small group tutoring. The Writing Center offers peer tutoring focused on supporting undergraduate writers at any stage of a writing assignment. The UCS160 course and academic skills consultations offer students strategies and activities aimed at improving their studying and test-taking skills. Complete details about each of these programs, up-to-date schedules, contact information and self-service study resources are all available on the AEC website, web.uri.edu/aec.

Descriptions of AEC services if you wish to provide additional details:
• STEM Tutoring helps students navigate 100 and 200 level math, chemistry, physics, biology, and other select STEM courses. The STEM Tutoring program offers free online and limited in-person peer-tutoring. Undergraduates in introductory STEM courses have a variety of small group times to choose from and can select occasional or weekly appointments. The TutorTrac application is available
through URI Microsoft 365 single sign-on and by visiting aec.uri.edu. More detailed information and instructions can be found at uri.edu/aec/tutoring.

- **Academic Skills Development resources** helps students plan work, manage time, and study more effectively. All Academic Skills and Strategies programming are offered both online and in-person. UCS160: Success in Higher Education is a one-credit course on developing a more effective approach to studying. Academic Consultations are 30-minute, 1 to 1 appointments that students can schedule on Starfish with Dr. David Hayes to address individual academic issues. Study Your Way to Success is a self-guided web portal connecting students to tips and strategies on studying and time management related topics. For more information on these programs, visit uri.edu/aec/academic-skills or contact Dr. Hayes directly at davidhayes@uri.edu.

- The Undergraduate Writing Center provides free writing support to students in any class, at any stage of the writing process: from understanding an assignment and brainstorming ideas, to developing, organizing, and revising a draft. Fall 2020 services are offered through two online options: 1) real-time synchronous appointments with a peer consultant (25- and 50-minute slots, available Sunday - Friday), and 2) written asynchronous consultations with a 24-hour turn-around response time (available Monday - Friday). Synchronous appointments are video-based, with audio, chat, document-sharing, and live captioning capabilities, to meet a range of accessibility needs. View the synchronous and asynchronous schedules and book online, visit uri.mywconline.com.

**No Work Submitted and Incomplete Grades:** University of Rhode Island regulations concerning no work submitted and incomplete grades will be followed. See the University Manual section 8.53.12 regarding no work submitted and sections 8.53.20 and 8.53.21 regarding incomplete grades for details.

**Religious Holidays:** It is the policy of the University of Rhode Island to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students who plan to be absent from classes or examinations for religious holy days that traditionally preclude secular activity shall discuss this with the appropriate instructor(s) in advance of the holy day. See the University Manual section 8.51.11 for details.

**Standards of Behavior:** Students are responsible for being familiar with and adhering to the published “Community Standards of Behavior: University Policies and Regulations” which can be accessed in the University Student Handbook

web.uri.edu/studentconduct/university-student-handbook/

In particular, students are expected to support and promote the creation of a positive and productive learning environment. Examples of disruptive behaviors include inappropriate use of electronic devices, failure to set cell phones/pagers to silent, texting, carrying on unnecessary conversations, rudeness, etc. These behaviors and any behavior that interferes with the instructor’s ability to conduct the class or other students’ ability to have a quality learning experience will not be tolerated.
Appendix : PDF Files

You will need to submit written work as a single pdf file. If you already know how to do this, feel free to skip the text below.

There are several ways one can convert handwritten notes into a pdf file. Here are some freely available ways of going about this:

1. Using a scanner if available.

2. Using a smart device, e.g., phone or a tablet. Here is a couple apps FREE applications:
   (a) Apple iOS – Scannable or Office Lens (later syncs with One Drive)
   (b) Android - ScannerApp or Office Lens (later syncs with One Drive)

   Whichever application you choose, you should not have to purchase it!

3. If none of the above options work, then you can do the following:
   (a) Take photos of individual handwritten pages.
   (b) Import each photo in a single Word document (one photo per page, enlarged as much as possible).
   (c) Export/save the Word document as pdf.

4. Finally, if you need to merge multiple pdf files into a single pdf file, you can use tools freely available on internet, e.g., https://www.pdf2go.com/merge-pdf