Syllabus and Course Information

MATH 112
CRN 27305
Elementary Functions
University of Oregon
Winter 2019.

Instructor: Andrew Lebovitz
andrew.lebovitz@gmail.com
Office: 303A Deady Hall
Office Hours: MoWeFr 1:00 - 2:00 pm

Course Website: https://pages.uoregon.edu/alebovit/teaching/winter2019/112winter2019.html

Catalog Information

Exponential, logarithmic, and trigonometric functions. Intended as preparation for MATH 251 (Calculus I).
Prerequisite: MATH 111 (College Algebra) or satisfactory placement test score.

Student Learning Outcomes

A successful student should be able to

1. identify the vertical and horizontal transformations that take a parent function to a function indicated by a formula, verbal description, or graph.
2. identify whether a function is periodic from its definition.
3. describe characteristics of periodic functions such as period, as well as amplitude and midline when applicable.
4. describe the sine, cosine, and tangent functions from both the unit circle and right triangle perspectives.
5. describe the characteristics of the sine, cosine, and tangent functions.
6. calculate all angles and side lengths of both right and oblique triangles, given appropriate information.
7. compute using both degrees and radians as measures of angles.
8. make use of the Pythagorean identity as well as identities involving negative angles and the periods of sine, cosine, and tangent.
9. construct mathematical models from exponential, logarithmic, trigonometric, polynomial, and rational expressions.
10. describe vectors in mathematical and physical science contexts.
11. add, subtract, and perform scalar multiplication with vectors.
12. find and interpret the dot product of two vectors geometrically.

Textbook and Resources

Required Textbook

Functions, Trigonometry, and Their Applications, Version 2.0 by Daniel Raies

You are expected to read the textbook, preferably before we cover the material in class. At the very least, it is useful to identify the key ideas and issues.

Calculator Policy

A calculator is not required, although I recommend the TI-30X IIS or HP 10s. During formal assessments,
- only basic, non-programmable scientific calculators, like those mentioned previously, may be used.
- all graphing and programmable calculators must be turned off and inaccessible.
- cell phones and other multimedia- or internet-capable devices may not be used as calculators.
- students may not share calculators.

I write exams that emphasize conceptual understanding and the skills and techniques you should be able to apply on your own. Still, I recommend that you familiarize yourself with a basic scientific calculator which you may use during exams.

Resources
The following resources are excellent and free, and you may consult them while studying and working on homework (remember to cite your sources).

- Wolfram|Alpha (wolframalpha.com/)
- Desmos (desmos.com/)

**Course Structure and Approach**

There will be two 110-minute classes each week. Lecture time will also include some discussion and short activities to promote active learning (working problems, forming and evaluating ideas, and discussing difficulties).

**Assessment and Grades**

**Homework**

You are allowed to consult any source (animate or inanimate) while studying for this course and working on homework. You are also encouraged to discuss ideas and problems with your peers. However, you are expected to make an honest attempt to solve every problem on your own before consulting other sources. And if you consult other sources for a homework problem, mention them at the top of the assignment or in the margin next to the problem (whichever is more appropriate). Refer to the policy on plagiarism for more information.

There are two types of homework assignments—Daily Homework and WeBWorK.

*Daily Homework.* Homework will be assigned at each class meeting, excluding dates with exams. You are expected to work hard (by studying relevant textbook sections, applying concepts and techniques from lecture, etc.) to solve every exercise before the start of our next meeting.

Solutions to exercises will be presented at the class meeting when they are due. You are allowed and encouraged to modify your Daily Homework solutions during presentations made in class; however, you are required to do so using the colored pens provided in class.

It is critical that I can differentiate between work done at home and work done in class because grades on Daily Homework assignments are based solely on work done outside class. Grades on Daily Homework reflect the rubric provided below.

Your written work must
- include your first and last name at the top of the front page, along with the assignment number.
- be legible.
- be neat and orderly. In particular, pages do not have ragged edges and responses are organized and identified clearly. Multiple pages must be stapled together.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>There is evidence of meaningful work on every problem, even though there may be some technical flaws and oversights or unclear language.</td>
</tr>
<tr>
<td>1</td>
<td>Unattempted problems and arguments with significant gaps account for a substantial portion of the assignment.</td>
</tr>
<tr>
<td>0</td>
<td>A negligible portion of the assignment was completed.</td>
</tr>
</tbody>
</table>

Rubric for Daily Homework

You are also required to assess the quality of your work. For each exercise, write down a score between 0 and 10 representing your perception of the quality of your response. Consider following the Rubric for Self-Assessment provided below. Not completing the self-assessment step will affect your homework score.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>The response identifies and addresses every important element of the problem. The proposed solution is correct and convincing.</td>
</tr>
<tr>
<td>8-9</td>
<td>The response is nearly complete or contains a minor technical flaw or miscalculation. Alternatively, the solution is complete but the explanation omits some details.</td>
</tr>
<tr>
<td>7</td>
<td>The response addresses the problem satisfactorily, but the argumentation is incomplete due to a gap in reasoning or a muddled explanation. There may be a computational error that prevents a small portion of the problem from being adequately addressed.</td>
</tr>
<tr>
<td>4-6</td>
<td>Although the solution begins appropriately, it omits significant information or steps or indicates a poor understanding of relevant ideas and processes. Serious computational errors may also be present.</td>
</tr>
<tr>
<td>1-3</td>
<td>The proposed solution is ineffective and omits a significant portion of the necessary information. A standard method may also be applied inappropriately in the response.</td>
</tr>
<tr>
<td>0</td>
<td>No meaningful progress is evident. This grade also applies when parts of the problem were copied without attempting a solution.</td>
</tr>
</tbody>
</table>

WeBWorK. Online assignments are due on Thursdays and Sundays at 11:59 pm, with the exception of Dead Week.
There are links to WeBWorK on the course website and Canvas. Alternatively, you may access it directly at https://webwork.uoregon.edu/webwork2/Math112-27305/.
Login to WeBWorK with your Duck ID.
Exams

There will be two midterm exams, administered during regular class meetings, and a final exam. You will have 50 minutes complete each midterm exam. The final exam is cumulative. Students may not share answers or view others’ work during any exam.

Grades

Learning Management System. Our use of Canvas (canvas.uoregon.edu/), which is the default learning management system at UOregon, will be limited. It will be used primarily to communicate grades. Most course content is available on the course website.

Basis for Evaluation. Your final grade depends on scores earned in the categories listed in the table below.

<table>
<thead>
<tr>
<th>Components of the Final Grade</th>
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</thead>
<tbody>
<tr>
<td>Grade Category</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>Daily Homework</td>
</tr>
<tr>
<td>WeBWorK</td>
</tr>
<tr>
<td>Midterm I</td>
</tr>
<tr>
<td>Midterm II</td>
</tr>
<tr>
<td>Final Exam</td>
</tr>
</tbody>
</table>

Cutoffs for letter grades will be no higher than the standard scale of 90%, 80%, 70%, and 60% for A, B, C, and D, respectively. You should expect the course grades to adhere to the standard scale.

To earn a C or better in the course, a student must earn a C or better on at least one exam.

Class Etiquette

Making and discussing mistakes are normal human activities. These activities are also essential to meaningful mathematical practice, and the best moments of the term often take shape when some work is incomplete or inaccurate in an interesting way. With these remarks in mind, everyone in this class has the right\(^1\) to

1. make mistakes and revise their thinking,
2. be confused, and
3. speak, listen, and be heard.

In support of these rights, every member of our class must adhere to the UO Community Standards Affirmation. Any behavior that is destructive to the sense of community we strive toward will not be tolerated.

Additional Policies

Student Workload

\(^1\)Adapted from Rights of the Learner: An Introduction by Crystal Kalinec Craig.
The UO Committee on Courses (committees.uoregon.edu/node/10) has set standards for student workload. The Credit Hour and Student Workload Policies define "one undergraduate credit hour as approximately 30 real hours of student work, both in class and out of class." On average, the policy dictates eight hours of work per week outside the classroom for a 4-credit course.

In my experience, students who hope to earn average or above-average grades should expect to fulfill the time commitment set by UO policy.

Also, the Credit Hour and Student Workload Policies sets standards for students who meet the course prerequisites. Students lacking relevant prior knowledge and skills should anticipate additional time commitments.

**Attendance**

Attendance and active participation at every class meeting are expected and encouraged, even though you will not be graded explicitly on attendance. I take my responsibility to make class worth attending seriously, and I expect you to be prepared, punctual, and academically engaged for the entire class.

**Absences**

Students are accountable for work missed due to absences as well as any announcements made during class, including changes to the syllabus.

**Makeups**

Accommodations are usually not provided for missed classes, assignments, or exams. Makeups are guaranteed only for university-sponsored activities (e.g., approved academic conferences and workshops, students with support through Services for Student Athletes, etc.). Students should not expect special arrangements for any other reason. Moreover, accommodations for exceptional circumstances are not guaranteed and depend on the judgment of the instructor.

Once an exam is graded and returned to students, it cannot be made up.

The instructor must retain a copy of any documentation presented to support an absence.

**Late Homework**

Late homework will not be accepted.

**Electronics**

Cell phones and other devices may be used for class-related purposes when appropriate. But if a device interferes with your or another’s ability stay on task, I will ask you to put it away. In contrast, all electronic devices must be turned off and inaccessible during formal assessments. If you are found to be in possession of a multimedia- or internet-capable device during a formal assessment, it will be treated as a violation of the Student Conduct Code and will result in a grade of 0% on the entire assessment in question. Egregious cases and repeated offenses will be dealt with more harshly.

**Students with Disabilities**

Any student with a disability who may need accommodations in this class must register with the Accessible Education Center (aec.uoregon.edu/). To obtain accommodations, make sure you present your notification letter as early as possible. Communicate directly with the instructor if you encounter any barriers to full participation in the course.

**Plagiarism**
While you are encouraged to discuss problems with your peers, any work you do must be your own. Copying another's words or otherwise passing off someone else's work as your own is plagiarism, and a first offense will result in a grade of 0% on the entire assignment in question. Egregious cases and repeated offenses will be dealt with more harshly.

**Academic Integrity**

The UOregen Student Conduct Code (policies.uoregon.edu/) applies 100% without exception. Know it and live it.

Refer to the Ethics Statement, policies on electronics and plagiarism, and Assessment and Grades section in this syllabus for additional information on academic conduct.

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**STATEMENTS**

**Ethics Statement**

In this course, the evaluation of your performance depends on your original work. Consequently, the strength of our academic community depends on intellectual honesty. You must complete and present your work in this course with honesty and integrity.

Ethical violations include plagiarism, improper use of the internet and electronic devices, reuse of assignments, alteration of graded work, forgery and falsification, lying, unauthorized or illegitimate help, and facilitating academic misconduct.

Report any violations you witness to the instructor. Effective learning and teaching depend on our capacity to trust each other and to trust the integrity of work conducted at the university.

**Diversity Statement**

I value the experiences and knowledge that a diverse and engaged student body brings to our classroom, and I affirm the right of all students to an education free of discrimination and harassment. Every student is valued and respected regardless of race, ethnicity, national origins, religion, sexual orientation, or gender identity/expression.

**Mental Health**

If you are struggling with anxiety, stress, depression, or other mental health concerns, please consider visiting the UO Counseling Center (counseling.uoregon.edu). If you are concerned about a friend, please encourage that person to seek out their services. The phone number for the UO Student After-Hour Support and Crisis Line is 541-346-3227.

**Title IX**

Any student who has experienced sexual assault, relationship violence, sex or gender-based bullying, stalking or sexual harassment may seek resources and help at safe.uoregon.edu. To get help by phone, a student can also call the UO’s 24-hour hotline at 541-346-7244 [SAFE], or the non-confidential Title IX Coordinator at 541-346-8136. From the SAFE website, students may also connect to Callisto, a confidential, third-party reporting site that is not a part of the university.

Students experiencing any other form of prohibited discrimination or harassment may find resources at respect.uoregon.edu and aaeo.uoregon.edu, or contact the non-confidential AAEO office at 541-346-3123 and the Dean of Students Office at 541-346-3216 for help. Additional information about reporting requirements for discrimination or harassment unrelated to sexual assault, relationship violence, sex or gender-based bullying, stalking, and
sexual harassment is available at Discrimination & Harassment. Note that there are different reporting requirements per UO policy based on the nature of the reported harassment or discrimination.

As a Student-Directed Employee, I will direct students who disclose sexual harassment or sexual violence to resources that can help. I will only report information shared to the university administration at the student’s request (unless someone is in imminent risk of serious harm or a minor).

I am required to report all other forms of prohibited discrimination or harassment to the university administration. I am also a mandatory reporter of child abuse.

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**IMPORTANT DATES**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>6 February</td>
<td>Midterm I</td>
</tr>
<tr>
<td>27 February</td>
<td>Midterm II</td>
</tr>
<tr>
<td>18 March</td>
<td>Final Exam</td>
</tr>
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</table>

Visit the course website for a tentative weekly schedule.

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**CHANGES TO THE SYLLABUS**

The syllabus may be modified to address fairness and equity in student learning outcomes. The schedule, coverage of topics, or other course components may be revised accordingly at the judgment of the instructor.

Any changes to the syllabus will be communicated to the class.

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**GETTING HELP**

There are many academic resources available to students. First, it can be extremely beneficial to work with other students, and I recommend that you do so. I hold several office hours during the week, and tutoring and help are available at two locations on campus.

1. The Teaching and Learning Center ([tlc.uoregon.edu/](tlc.uoregon.edu/)) offers free tutoring on the fourth floor of the Knight Library, and
2. homework help is available at the Mathematics Library ([library.uoregon.edu/scilib/mathlib](library.uoregon.edu/scilib/mathlib)) on the second floor of Fenton Hall.

Finally, remember that you can always email me.

You have the responsibility to evaluate how well you understand the course material, and to take action based on that judgment. Your mastery of the material ultimately depends on you and your desire to participate.