Plane Trigonometry

MATH 103–01

Fall 2021

Instructor: Dr. Willis, Professor of Mathematics
Office: Discovery Hall, Room 368
☎**:** 308 - 865 - 8868
Email: willisb@unk.edu
Zoom for classes: For Zoom class meetings, use the Meeting ID: 616 568 5706.
Zoom for office hours: For Zoom office hours, use the Meeting ID: 981 7908 2161
Office Hours: Either in person or by Zoom: Monday, Wednesday, and Friday, 9:30–11:00; Tuesday and Thursday 13:00 – 14:00; Monday and Wednesday 13:30 – 15:00; and by appointment.

Textbook & WebAssign

The Class Key for WebAssign is **unk 6035 9620**. Our textbook is *Trigonometry (LL)-W/WebAssign Access*, by Larson (ISBN: 9781337605168). You *must* register for WebAssign.

Important Dates

First online homework ..... Friday, 3 September
Exam 1 ..... Tuesday, 21 September
Exam 2 ..... Tuesday, 26 October
Exam 3 ..... Tuesday, 30 November
Final exam ..... Thursday 16 December, 8:00–10:00

Grading

Your course grade will be based on online homework, in class work, midterm exams, and a comprehensive final exam; specifically:

Online homework: *29 five point assignments* ..... 145 (total)
In class work: *12 ten point assignments* ..... 120 (total)
Mid-term exams 1,2, and 3: *100 points each* ..... 300 (total)
Comprehensive Final exam ..... 150 (total)

The following table shows the *minimum* number of points (out of 715) that are required for each of the twelve letter grades D- through A+. For example, a point total of 620 points will earn you a grade of B+ and a point total of 619 points will earn you a grade of B. A point total of 429 or less earns you a failing course grade.

D-	429	B-	572
D	453	B	596
D+	477	B+	620
C-	501	A-	668
C	525	A	692
C+	549	A+	750

Course Calendar

Generally, we'll adhere to the scheduled exam dates even if we are ahead or behind with course work. When we are ahead or behind, the topics on the exams will be appropriately adjusted. There is no new topics scheduled for dead week, if we adhere to the schedule, we'll review during dead week, but if we fall behind, we'll cover new topics during dead week.

Notices:

(a) Exams will be given on the Tuesday of the week they are assigned.

(b) In class work will generally be done on Tuesday of the week they are assigned.

(c) Online homework (labeled **HW**) will be due at midnight on Friday of the week they are assigned. Most homework assignments will cover multiple sections.

(d) The homework assignment that is due the Friday after Thanksgiving will be assigned sufficiently early for you to complete it before the Thanksgiving break.

Week	Monday	Section(s)	Topic(s)	Assessments
1	8/23	§P.1 – §P.10	Prerequisites	**In-class 1**
2	8/30	§1.1 – §1.2	Radian measure, Trigonometric functions: unit circle	**In-class 2 HW 1**
3	9/6	§1.3 –§1.4	Right triangles, Trig functions	**In-class 3 HW 2**
4	9/13	§1.5 – §1.6	Graphs of sine & cosine; Graphs of other trig	**In-class 4 HW 3**
5	9/20	§1.7–§1.8	Inverse trig functions, applications	**Exam 1 HW 4**
6	9/27	§2.1 – §2.2	Fundamental identities, Verifying identities	**In-class 5 HW 5**
7	10/4	§2.3 – §2.4	Solving trig equations, sum & difference formulas	**In-class 6 HW 6**
8	10/11	§2.5 – §3.1	Multiple angle formulas & Law of sines	**In-class 7 HW 7**
9	10/18	§3.2 – §3.3	Law of cosines, Vectors	**In-class 8 HW 8**
10	10/25	§3.4	Dot products	**Exam 2 HW 9**
11	11/1	§4.1 – §4.2	Complex numbers & Complex solution of equations	**In-class 9 HW 10**
12	11/8	§4.3 –§4.4	Complex plane & Trig form of numbers &	**In-class 10 HW 11**
13	11/15	§4.5	DeMoivre's theorem	**In-class 11 HW 12**
14	11/22	§6.5, §6.7	Rotations & Polar coordinates	**In-class 12 HW 13**
15	11/29	§6.8	Graphs of polar equations	**Exam 3 HW 14**
16	12/6		Catch up or Review	(none)
17	12/13			**Final Exam**

Additional Resources

(a) Reliable Internet access.

(b) An Internet connected camera (for turning in class work electronically).

(c) An Internet connected computer (not just a phone or tablet) that can run Zoom.

(d) If we need to convert this class to remote learning, your computer will need to have a microphone and a camera. For remote office hours, it can be useful to have a separate camera that can be pointed toward a well-lit writing surface.

(e) A basic scientific calculator (needn't be a graphing calculator).

(f) Pencils, erasers, notebook for note taking. Colored pens or pencils are nice for note taking.

In-class work & online homework

Except for examination days, we will do in class work for a portion of each class on Tuesday. In class work must be turned in electronically to Canvas (not emailed to me) by midnight the day we do it. Online homework is due each Friday at midnight.

Online classes

If you are ill, please let me know and join class via Zoom. But be aware that technology doesn't always work, sometimes I forget to click all the buttons to make it work, and the readability of class materials over Zoom is sometimes poor. So if you join class regularly by Zoom, it's your choice, but I do not recommend it.

Policies

1. Class cancellations due to weather or illness or other unplanned circumstances may require that we make minor adjustments to the course calendar, exam dates, and due dates or specifics for course assessments. Should we end the term with a point total that differs from 715, your point total will be scaled to 715 points and we will use the course grade scheme in the section 'Grading.'

2. You must register for WebAssign in time to complete the first assignment (due midnight 3 September).

3. Extra credit is not allowed.

4. For online homework, you may work in groups and you may seek help from the Learning Commons.

5. For examinations, you make use a teacher provided crib sheet, but no other reference materials. You may also use a pencil, eraser, and a scientific calculator. For examinations, your phone and all such devices must be turned off and *out of sight*. Checking your phone to look at the time is *not* allowed. Using unauthorized materials during an examination will earn you a failing course grade.

6. Generally, if you are ill or absent for any reason (including athletics), you must turn in your in class work on time. Permission to turn in work late must be made in advance, otherwise late in class work will count zero points.

7. Generally, if you are ill or absent for any reason (including athletics), you must turn in your online homework on time. Permission to turn in work online homework late must be made in advance, otherwise it will count zero points.

8. During class time, please refrain from using with electronic devices. If your device usage distracts your classmates, I will ask you to put it away. If it's my impression that you are often not paying attention in class, I reserve the right to decline to help you during office hours.

9. The final examination will be *comprehensive* and it will be given during the time scheduled by the University. Except for *extraordinary circumstances* you must take the exam at this time.

10. If you have questions about how your work has been graded, make an appointment with me immediately.

11. All printed materials, in either paper or digital form, that I provide for you in this class, are for your own use. Re-posting or sharing these materials with other persons is prohibited.

12. Please regularly check Canvas to verify that your scores have been recorded correctly. If I made a mistake in recording one of your grades, I'll correct it provided you saved your paper.

13. The work you turn in is expected to be *accurate, complete, concise, neat*, and *well-organized. You will not earn full credit on work that falls short of these expectations.*

14. For examinations, show your work. No credit will be given for multi-step problems without the necessary work. Your solution must contain enough detail so that I am convinced that you could correctly work any similar problem. Also erase or clearly mark any work you want me to ignore; otherwise, I'll grade it.

Course Prerequisites MATH 102 or Math ACT Score of 22 or greater and two years of high school algebra.

Course Description

Plane Trigonometry. 3 credit hours. This course is the study of trigonometric functions.

General Studies Program Information

MATH 103 is a general studies course that satisfies LOPER 4 (Mathematics, Statistics and Quantitative Reasoning) foundational requirement.

Purpose of General Studies

The UNK LOPERs General Studies Program helps students to develop core academic skills in collecting and using information, communications in speech and writing, and quantitative reasoning (LOPERs 1-4); to acquire broad knowledge in a variety of disciplines across the arts, humanities, social sciences, and natural sciences (LOPERs 5-8); and to instill dispositions that prepare students to lead responsible and productive lives in a democratic, multicultural society (LOPERs 9-11).

GS Foundational Requirement Program Objective

Courses are designed for students to develop core academic skills in collecting and using information, communications in speech and writing, and quantitative reasoning.

LOPER 4 (Mathematics, Statistics, and Quantitative Reasoning) Learning Outcomes:

(a) Can describe problems using mathematical, statistical, or programming language

(b) Can solve problems using mathematical, statistical, or programming techniques

(c) Can construct logical arguments using mathematical, statistical, or programming concepts

(d) Can interpret and express numerical data or graphical information using mathematical, statistical, or programming concepts and methods

The first Learning outcome is met by the mathematical set up and preparation of solutions to various problems encountered in this course about trigonometric functions and trigonometric identities as well as their applications. The second and third learning outcomes are met in solving such problems using mathematical skills and logical arguments. The fourth learning outcome is met by understanding those problems which involve graphs and data and by giving solutions to those problems. The four learning outcomes are assessed by grading homework, quizzes, exams, and/or projects based on the set up and defense of the submitted work, the validity of the submitted solution's logical reasoning, the accuracy of the answers, the accuracy of the graphs and data in the submitted solutions and/or the accuracy of the interpretation of the graphs and data from the assigned problem.

Academic integrity

Students are expected to adhere to the UNK Academic Integrity Policy found in the current Undergraduate Academic Catalog: `https://catalog.unk.edu/undergraduate/academics/academic-regulations/academic-integrity-policy/`

Students with Disabilities or Those Who are Pregnant

Students with Disabilities It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities. To receive accommodation services for a disability, students must be registered with the UNK Disabilities Services for Students (DSS) office, 175 Memorial Student Affairs Building, 308-865-8214 or by email unkdso@unk.edu

UNK Statement of Diversity & Inclusion: UNK stands in solidarity and unity with our students of color, our Latinx and international students, our LGBTQIA+ students and students from other marginalized groups in opposition to racism and prejudice in any form, wherever it may exist. It is the job of institutions of higher education, indeed their duty, to provide a haven for the safe and meaningful exchange of ideas and to support peaceful disagreement and discussion. In our classes, we strive to maintain a positive learning environment based upon open communication and mutual respect. UNK does not discriminate on the basis of race, color, national origin, age, religion, sex, gender, sexual orientation, disability or political affiliation. Respect for the diversity of our backgrounds and varied life experiences is essential to learning from our similarities as well as our differences. The following link provides resources and other information regarding D&I: `https://www.unk.edu/about/equity-access-diversity.php`

Students Who are Pregnant It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students who are pregnant. To receive accommodation services due to pregnancy, students must contact Cindy Ference in Student Health, 308-865-8219. The following link provides information for students and faculty regarding pregnancy rights.[1]

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:

(a) Local Domestic Violence, Sexual Assault Advocacy Agency 308 - 237 - 2599

(b) Campus Police (or Security) 308 - 865 - 8911

(c) Title IX Coordinator 308 - 865 - 8655

Retaliation against the student making the report, whether by students or University employees, will not be tolerated.If you have questions regarding the information in this email please contact Mary Chinnock Petroski, Chief Compliance Officer (petroskimj@unk.edu or phone 308 - 865 - 8400.

[1] http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students