

Cedarville University

Department of Science and Mathematics

Precalculus, GMTH 1030-03 online, Fall 2010

- **Important:** This online course will be delivered using ALEKS, a web-based artificially intelligent assessment and learning system. You will need to purchase a registration code for ALEKS, as explained below in the syllabus. Read this syllabus carefully several times to make sure you understand the organization and requirements of the course. Print out the syllabus and place it in an easily accessible place on your desk where you will see it for easy reference and be reminded of the course requirements everyday.
- Instructor: Dr. Otis Wright
- e-mail: wrighto@cedarville.edu.
- Section information: GMTH 1030-03, online, syn. no. 5876.
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| Final Exam: Friday, December 3, 2010, online ALEKS |
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- **Prerequisite:** college algebra or equivalent.
- **Course Description:** This course introduces you to the exponential and logarithmic functions, the trigonometric functions, trigonometric identities and vectors in the plane. Mastery of these topics will enable you to enter into the study of calculus using functions that model typical growth, decay and periodic behaviours in physical, biological and economic applications.
- **Textbook:** Purchase of the following textbook is **optional** for the online course: *Precalculus* 7th edn, R. A. Barnett, M. R. Ziegler, K. E. Byleen, D. Sobecki McGraw-Hill, 2011, ISBN 0077349911 or ISBN-13 9780077349912.

Note: The text of the textbook is integrated with the ALEKS course, so that when you register for ALEKS, you will have access to the relevant textbook chapters in the Learning Mode of ALEKS during the duration of your ALEKS registration. Many students will find the online explanations of ALEKS sufficient, together with the online links to the textbook chapters that cover the same material and, therefore, do not need to purchase their own copy of the textbook. However, if you wish to have access to the textbook during the open book tests

in this course, then you may wish to consider purchasing your own copy of the textbook.

- **ALEKS Course Code: FVJHG-LCGGG** You must purchase access to the course-delivery system called ALEKS at www.aleks.com and enter the course code to access the course material. Our course runs from Tuesday, September 7, 2010 until Friday, December 3, 2010, i.e., 13 weeks. Be sure to purchase sufficient access time on ALEKS to cover the entire period of the course, this means you will need to purchase access for an entire “semester” of 18 weeks on ALEKS. If you wish, you may purchase access to ALEKS prior to the beginning of the course and work ahead on the material. See “ALEKS Registration” below for step-by-step instructions to how to register for the course on ALEKS.

- **About ALEKS**

ALEKS is a web-based, artificially intelligent assessment and learning system. ALEKS uses adaptive questioning to quickly and accurately determine exactly what you know and don't know in the course, and then provides instruction on the topics you are most ready to learn. When you use ALEKS, you complete only the learning tasks that you need and not those somebody else needs.

Each of you will have a password-protected student account in ALEKS. Since all records of your work are kept on the ALEKS servers, you can access your account from any computer connected to the Internet.

In this course, you will be required to use ALEKS to master course content. Your work in ALEKS will constitute the entirety of your final grade in the course! ALEKS is very unfriendly to procrastinators; don't wait until the last minute to finish an ALEKS assignment as an automated progress assessment may interrupt your timing.

As you work through the course material using ALEKS, the professor will be following your progress through the learning objectives on ALEKS and helping you to navigate your way through the material via e-mail.

- **ALEKS Registration**

Before starting ALEKS, you must first register in our ALEKS course.

1. Go to www.aleks.com

2. Click on the link marked “New User - Sign Up Now” in the upper left corner of the page.
3. Under “Using ALEKS with a Class” enter the 10-character course code given below into the boxes provided, and click on “Continue” Course Code: FVJHG-LCGGG. Verify the course information and click on “Continue.”
4. Enter the ALEKS access code you purchased online by clicking on the “purchase an access code online” link and follow the instructions.
5. Answer the questions on the “Personal Information” page to complete your registration.
6. During the registration process, you will be given a login name and password. You will have the opportunity to change your password if you wish. Write down your login name and password, and keep them in a safe place. You will need them to access your ALEKS account in the future.
7. If you do not have a current ALEKS plug-in, one will be installed automatically at this time. The plug-in is a small software component needed by ALEKS and provided free of charge to all ALEKS users. Normally, installation is fully automatic and requires only a minute or so. If you experience any difficulty with installation, please contact ALEKS Customer Support at <http://support.aleks.com>. When the installation is complete, please be sure to close all of your browser windows to restart your browser.
8. Go to www.aleks.com and enter your ALEKS login name and password in the Registered Users area and click on “LOGIN” You will now be in your ALEKS student account.

- **ALEKS Tutorial**

After Registration you will take a brief Tutorial, or introduction to the ALEKS interface. It shows you how to enter the various kinds of answers that you may be asked to provide in ALEKS.

- **Initial ALEKS Assessment: due on or before Tuesday, September 7, 2010**

Following the Tutorial, you will be assessed to determine the correct starting point for your work in the course. Do the initial assessment carefully and honestly. If you do this assessment carelessly or answer randomly, you'll waste time later

because ALEKS will force you to work through material you already know and don't really need to review. Also, there is no advantage to consulting outside resources to improve your assessment score. Doing so, will not only make the assessment longer, but when you enter the Learning Mode, ALEKS will try to teach you things that you are not really ready to learn. The periodic progress assessments will discover this, and you'll spend even more time in Learning Mode to reach your correct learning state.

- **Progress Assessments in ALEKS**

Throughout the course ALEKS will generate Progress Assessments at **times determined by ALEKS and your individual progress** through the material in order to ascertain your current level of mastery of the material. These assessments do not form part of your grade but it is essential that you take them carefully and seriously so that ALEKS will not try to re-teach you things you already understand or move you ahead to things you are not ready to learn! There is no partial credit on assessments; take the time to be sure that you have entered your answer correctly. Enter only the final answer and have a pencil and scratch paper ready to use. NEVER click the "I don't know" button during any ALEKS assessment unless you really don't have any idea of how to solve the problem. Otherwise, ALEKS will think that you not only don't know how to solve that specific problem, but also other related problems. As you make progress in ALEKS, you will be automatically reassessed at regular intervals to check retention and provide review as needed. If the reassessment comes at a time when you cannot concentrate, log off and return later. You can also interrupt your assessment mid-way if you become tired, and return to complete it later. You may lose material from your pie on automatic reassessments; this is completely normal. The loss of material is based on the answers you gave on the assessment. ALEKS uses the assessments to update your pie and provide needed review.

- **ALEKS Pie Chart**

The results of your assessment are shown in a color-keyed pie chart. The pie chart represents the course curriculum; each slice of the pie chart represents a part of the curriculum and is filled in with solid color to reflect your current course mastery. Your goal is to fill in the slices of the pie chart by demonstrating your mastery of the course curriculum. If you move your mouse pointer around the slices, they will pop out and display lists of topics that you are currently ready to learn. Click

on any one of these topics to begin working in the Learning Mode.

- **ALEKS Learning Mode**

Most of your time in ALEKS will be spent in Learning Mode, working practice problems. ALEKS can provide a nearly unlimited variety of practice problems since they are algorithmically generated and do not rely on a question/answer bank that you can cycle through. In most cases, you will solve only a few problems per topic in order to establish your grasp of the concept. Every time you do a problem, ALEKS will give you immediate feedback on your answer. Note that if you make mistakes, ALEKS requires a little extra practice, but it doesn't start you over; you always get credit for the problems that you have answered correctly.

- **ALEKS Timing Out**

ALEKS will automatically terminate your session after 30 minutes. There is no warning message before the session is terminated. Simply log back on and ALEKS will bring you back to exactly where you left off.

- **ALEKS Buttons**

The following is a brief summary of the main buttons you will use in ALEKS.

- Explain - This button leads to an explanation and solution of the given practice problem. If you choose to view the solution, you will not get the same problem back again for practice, but rather a similar problem.
- Dictionary - This button leads to an online dictionary of terms. Terms appearing in the Learning Mode are also hyperlinked to corresponding entries in the Dictionary.
- Help - This button leads to Tutorial pages that you can access if you don't know how to enter your answer.
- Next - This button submits your answer to the problem.

- **Browser Buttons**

Please do not use your browser's back or forward buttons while working in your ALEKS student account; you should only use the navigation buttons and links within ALEKS itself. You may be tempted to review an ALEKS explanation to a problem, and then click the back button to return to the original question to enter the answer given in the explanation. If you do this, ALEKS will treat the

answer as correct but will NOT credit the answer toward your mastery of the topic. In other words, using this shortcut will not only prevent you from adding mastered topics to your pie, but it will also waste your time.

- **Technical Support**

Your professor cannot provide you with technical support for ALEKS. Please contact ALEKS Customer Support at <http://support.aleks.com> if you have questions or registration/system issues with ALEKS at any point during the term. Please contact your professor at wrighto@cedarville.edu with all questions related to the material and the course calendar.

- **Calculator Policy**

Since you are required to have access to ALEKS on your computer for this course, you may use the calculator provided by ALEKS as your calculator, or you may prefer to purchase and use your own calculator. There is no requirement to purchase any particular kind of calculator because all your calculations can be done using ALEKS and pencil and paper. If you choose to use your own calculator also, you are responsible for learning how to use that calculator, the professor cannot provide calculator technical assistance.

- **ALEKS Forum**

ALEKS has a Forum for threaded discussion. On the first day of class you should introduce yourself to the class in the ALEKS Forum, mentioning your name, whether you are an on-campus or off-campus student, and why you are taking Precalculus (e.g., prerequisite for another class or to fulfill a general education requirement.) Also during the semester you may post questions about the material to the forum and the professor will monitor the forum to provide feedback, or other students may provide assistance.

- **Course Structure:**

The course contains 163 learning goals, divided into a Review Module and four Content Modules. Each module lasts approximately two weeks, except for the module which covers Chapter 6 in about four weeks. The Review Module quickly covers 105 learning goals from the material from College Algebra which you are assumed to already know as a prerequisite for taking this course, therefore it moves very quickly because it is assumed that you already have a good grasp of this material.

1. Chapters R, 1, 2, 3: Review Material, 105 learning goals,
2. Chapter 5: Exponential and logarithmic functions, 15 learning goals,
3. Chapter 6: Trigonometric functions, 23 learning goals,
4. Chapter 7: Trigonometric identities, 15 learning goals,
5. Chapter 8: Additional topics in trigonometry, 15 learning goals.

- **Working through the Course**

You will be working through the material using ALEKS and your textbook. You will be expected to work on ALEKS questions at a minimum of every day, 5 days a week, for an average of 2 hours a day. In addition you should allocate 1 hour daily to reading through relevant material in the textbook as indicated by the course calendar or as needed based on suggestions given by ALEKS and your professor.

Although the Review Module contains a large number of learning goals, most of these goals you will “test out of” in the initial ALEKS assessment that you take on the first day of the course. If you are properly prepared with the prerequisite College Algebra topics, the initial ALEKS assessment will discover this and add these topics immediately to your pie chart. If there are a few topics that you have not yet mastered, you will have two weeks at the beginning of the course to work on these topics in ALEKS.

In order to cover all the material, when working in the four Content Modules, you should expect to master approximately two learning goals per day. As you master a learning goal, it will be added to your ALEKS pie chart and ALEKS will inform you of your progress.

The Course Calendar provides dates for when ALEKS will begin to move you into the different chapters of the textbook and for the Review Test, the four Chapter Tests and the Final Exam.

Although the Course Calendar shows dates when ALEKS will attempt to move you into the different chapters of the textbook, each student will proceed through the material at their own rate, if ALEKS assesses that you have completed the goals of a chapter early, ALEKS will automatically move you on to new material and possibly a new chapter before the date assigned in the Course Calendar. Also ALEKS will not allow you to move on to material that you are not yet ready for.

- **Course Calendar, Spring 2010**

Dates	Material
9/7	Initial ALEKS Assessment
9/7-9/9	Review: Chapter R, Basic Algebraic Operations, pp.1-40
9/10-9/14	Review: Chapter 1, Equations and Inequalities, pp.43-108
9/15-9/16	Review: Chapter 2, Graphs, pp. 109-160
9/17-9/20	Review: Chapter 3, Functions, pp. 161-258
9/21	Review Test, Chapters R,1,2,3
9/22-10/3	Chapter 5, Exponential and Logarithmic Functions, pp. 327-384
10/4	Test 1: Chapter 5
10/5-10/28	Chapter 6, Trigonometric Functions
10/29	Test 2: Chapter 6
11/1-11/14	Chapter 7, Trigonometric Identities and Conditional Equations
11/15	Test 3: Chapter 7
11/16-12/1	Chapter 8, Additional Topics in Trigonometry
12/2	Test 4: Chapter 8
12/3	Comprehensive Final Exam

- **Assessment**

Your grade will be based on two components: (a) Chapter Completion, 50% is based on your completion of learning goals prior to the assigned chapter due dates in the Course Calendar in the following way: 10% is assigned collectively to the learning goals in the Review Module (Chapters R, 1, 2, 3) and 10% is assigned to the learning goals in each of the four Content Modules (Chapters 5, 6, 7 and 8). The percentage of the learning goals mastered is determined by ALEKS as you work through the questions on ALEKS in Learning Mode and in Progress Assessments (in other words, this portion of your grade is simply the percentage of your “pie chart” which you fill, the more you work on ALEKS in learning mode and the more of your pie chart of learning goals you master before the Chapter completion date, the higher this part of your grade) and (b) Tests, 50% is based on the four chapter tests and the final exam (there is also an Algebra Review Test which counts as 5% extra credit). The assessment structure is summarized in the table below. Each of the tests and the final exam is “open book” in the sense that you can use your textbook, your calculator and your own notes (please note that you will not be able to access the textbook pages on ALEKS during a test, you must have a physical copy of the text in order to use it during a test). You must not use any other helps or receive any assistance from any other sources or people than the three sources specifically mentioned. Each test and the final

exam consists of 20 questions and must be completed within two hours.

Assessment Summary

Algebra Review Test (Chapters R,1,2,3)	5% (extra credit)
Chapter Completion (Chapters R,1,2,3)	10%
Chapter Completion (Chapter 5,6,7,8)	40%
Test 1: Chapter 5	10%
Test 2: Chapter 6	10%
Test 3: Chapter 7	10%
Test 4: Chapter 8	10%
Final Exam (Chapters 5,6,7,8)	10%
Total Grade	100%

The Total Grade scale for assigning your letter grade is the standard “10 point” scale: less than 60% F, 60%-69% D-,D,D+, 70%-79% C-,C,C+, 80%-89% B-,B,B+, 90%-100%, A-,A.

• Disability Services Statement

If you believe you may need support in managing the impact of a disability, please contact Amy Frey, afrey@cedarville.edu, (Disability Services). Faculty rely on Disability Services to verify the need for academic accommodations and to identify reasonable and appropriate accommodation strategies. Disability Services is part of the Academic Enrichment Center-The Cove located in the BTS building.

• Student Learning Outcomes

Upon completion of this course a student should be able to:

1. think analytically using the properties of trigonometric and inverse trigonometric functions,
2. simplify expressions and solve equations using trigonometric identities,
3. solve triangles using Law of Sines and Law of Cosines,
4. solve equations and simple models containing exponential and logarithmic functions,
5. manipulate vectors both analytically and graphically,
6. add and multiply complex numbers.