Welcome to Math 115!
The sole purpose of Math 115 is to prepare students to take Math 220: Calculus I at the University of Illinois. We will do that by reviewing some concepts you should have learned in previous high school mathematics courses but exploring the mathematics more deeply and from an advanced viewpoint. Our goals are to introduce you to the underlying logic and reasoning, create a familiarity with mathematical notation and give you opportunities to improve your critical thinking, problem solving, and study skills. By gaining this deeper understanding of “precalculus” mathematics, we believe your ability to master calculus will improve and your chance at success in a University level calculus course will be greatly increased.

The remainder of this document provides details about the different course components, requirements, and policies. It is critical that you read and understand all of the information provided here.

Mathematical Prerequisites
The admission policy to the University of Illinois in degree programs that require Math 220 states that you should have taken 3.5 years of mathematics, including trigonometry or higher. While we will review concepts from algebra and trigonometry, this course is designed as if you have already had a full treatment of these topics. If you know that your algebra skills are weak, you may want to consider taking Math 012: College Algebra before Math 115. If your trigonometry skills are weak (or non-existent), you are encouraged to take Math 014: Trigonometry. We will not discuss topics in trigonometry until the last fourth of the semester.

Placement Exam: All students enrolled in Math 115 must have a minimum Placement Exam score of 50%. If you do not earn at least a 50% on the Placement Exam by the 5th day of class, you will automatically be removed from Math 115 and placed in Math 012: College Algebra if possible.

Website: We will be maintaining a website for this class that will contain general information, announcements, and answers to frequently asked questions. You should always check the website before e-mailing us with questions. In fact, if you e-mail us with a question and we do not respond, it is probably because that information is available on the website: www.math.uiuc.edu/~carty/math115/math115_spring11.html

Required Materials: (1) Your lecture notes. (2) Access to ALEKS through an “ALEKS for Higher-Ed Math Course Semester Code”.

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1. **Lecture Notes:** The notes you take during lecture are a very important component of the course; you should consider them the required text. They are meant to be read again later. In the lectures, I am telling you what I believe is important and I will not follow the outline of any supporting text. Many topics will be presented in a more sophisticated manner than the text and others may not be covered in the text at all. Many of you will find it helpful to rewrite your notes and then attend office hours or tutoring to ask questions over anything you still do not understand. Be aware that I may use colors to separate ideas. You may find it useful to have different colors when taking notes.

2. **ALEKS:** ALEKS is a web-based assessment and learning system that uses artificial intelligence to determine what students currently know and what they are ready to learn next. We have designed an ALEKS component of the course which includes many of the topics that we consider to be prerequisite knowledge for this course (topics we will assume you already fully understand) as well as some of the concepts we will cover within this course itself. **Understand that this is NOT the same as the Mathematics Department’s Placement Exam.** Details about how the ALEKS component will fit into your Math 115 grade are found below. Instructions for purchasing an ALEKS access code and details about logging in can be found under the ALEKS link on the course website.

3. **Recommended Supporting Texts:**
   
a. **Calculus: Early Transcendentals, 6th Edition** by James Stewart *(Highly Recommended)*
   This is the text that is required for the standard Calculus sequence (Math 220/221, 231, 241) on this campus. (Recall that we expect that all of our students will be taking Math 220 in the spring semester.) The appendices and Chapter 1 review many of the pre-calculus topics we will cover in this course. Chapter 2 and Chapter 11 contain most of the new material in this course. Note that Math 115 does NOT follow the text in any sequential way. While we may select practice or homework problems from this text, since we are not requiring students to purchase the text, we will deliver these in a format separate from the text. There are also copies of this text on reserve in the Mathematics Library on the second floor of Altgeld.

   b. **PreCalculus, 2nd Edition** by John Coburn *(Barely Recommended)*
   This text consists of the topics of precalculus addressed in a traditional / high-school level way. For those with a weak college algebra or trigonometry background, you may find the text to be a good resource when studying course notes or working on the homework. The level of understanding and problems in this text are more akin to the review level problems associated with ALEKS. (In fact, the online text embedded in the ALEKS software is the Coburn PreCalculus text.) Again, this text will be on reserve in the Mathematics Library.

**Grading:** Your course grade will be based on the following:
Homework 14%
ALEKS 8%
Exam 1 16%
Exam 2 16%
Exam 3 16%
Final Exam 30%

Maximum cutoffs for letter grades will be the traditional 90%, 80%, etc with plus and minus grades given at the following intervals. Curves are possible but very rare.

A+ = 96.67-100
B+ = 86.67-90
C+ = 76.67-80
D+ = 66.67-70
A = 93.34-96.66
B = 83.34-86.66
C = 73.34-76.66
D = 63.34-66.66
A- = 90-93.33
B- = 80-83.33
C- = 70-73.33
D- = 60-63.33
F = below 60

Homework: Written homework will be collected roughly once a week. Homework assignments will be posted to the homework link on the course website.

The purpose of homework is to use the basic tools and examples that are provided in lecture to solve new problems rather than simply to reproduce computations that were presented as examples during the lectures. Homework will include new material not presented in lectures, so it is important that you read the problems carefully even if you cannot solve them initially.

We expect that students will struggle with some of the homework problems. You are encouraged to work together and discuss homework problems with classmates. Make use of office hours and tutoring. It is your responsibility to ensure you understand the concepts and ideas reinforced or presented in homework. To that end, even if group work was used to solve the homework problems, all students are required to compose and submit homework assignments individually.

A selection of homework problems from each homework assignment will be graded. Points for each homework assignment will be awarded based on the correctness of the solutions to the selected problems as well as:

- **Completeness:** A serious effort was made at providing solutions to all the assigned problems.
- **Neatness:** Solutions are clearly and neatly written on loose-leaf paper (not spiral-bound) with generous use of whitespace and pages are stapled together with the student’s name and lecture time written on each page.
- **Solution Addresses the Problem:** All that was asked for in the problem statement is provided in the solution. For problems that call for a specific computation or example (as opposed to an explanation) the answers are clearly written and boldly circled.
- **Style:** Problems that require an explanation or justification are answered with a clear and logical argument written in proper sentences. Additionally, mathematical terminology is used correctly.

All homework assignments will be collected at the start of lecture the day it is due. You must turn your homework in at the lecture for which you are registered. Any homework handed in later than 10 minutes after the start of class will be considered late. No late homework will be accepted under any circumstances.

As a result of this no late homework policy, to accommodate illness and absences, every student’s lowest written homework grade will be dropped when calculating final grades.
**ALEKS:** ALEKS is a web-based assessment and learning system that uses artificial intelligence to determine what students currently know and what they are ready to learn next. Understand that this is NOT the same as the Mathematics Department’s Placement Exam. We have designed an ALEKS component specific to Math 115 which includes many of the topics that we consider to be prerequisite knowledge for this course (topics we will assume you already fully understand) as well as some of the concepts we will cover within this course itself. For example, at this moment (before lecture 1) you should already be able to complete the “Algebra Review” and “Functions and Graphs” portions of the ALEKS component. Those without a background in sequences and series or trigonometry will obviously not be able to complete these components until they are reviewed in lecture.

The ALEKS program begins by giving you an initial assessment to gauge what topics you already know and what topics you are ready to learn next. After that initial assessment, you will be able to master new topics by completing practice problems. After spending a certain amount of time working in this “learning mode”, the program will give you a progress assessment. You must take these progress assessments seriously. If you rush through them and do poorly, you can lose some of the progress you’ve made in learning mode.

In some sense, you will be able to work through this ALEKS component on your time at your own pace in order to reach a certain level of mastery by certain deadlines throughout the semester. We have broken the entire ALEKS component into four *intermediate objectives*. The deadlines for these intermediate objectives are currently set as follows:

- Part 1 – Feb 14
- Part 2 – Mar 14
- Part 3 – Apr 11
- Part 4 – May 2

Note that these deadlines are subject to change. Any change will be announced in class and on the course webpage.

Each intermediate objective will count as 2% of your total grade in Math 115. The grade for each intermediate objective is calculated as a raw percentage: topics mastered over the total number of topics within that intermediate objective. ALEKS will inform you how many total topics you have left to master in each intermediate objective. To help with the understanding of your current ALEKS grade through out the semester, the total topics assigned to each intermediate objective is as follows:

- Part 1 – 85 Items
- Part 2 – 83 Items
- Part 3 – 88 Items
- Part 4 – 98 Items

There is quite a bit of overlap in the topics that are included in each intermediate objective. A significant number of the topics included in Part 1 also appear in Parts 2-4. Once a topic is mastered in Part 1, you will not have to master it again in the other parts (unless one of the progress assessments determines that you no longer understand that topic). However, there are some topics in Part 1 that are NOT included in the other three parts. Once the deadline for Part 1 has passed, those topics will no longer be available for
you to work on until after the fourth deadline has passed. Once the fourth deadline has passed, all of the topics will be available and you will be able to continue to review and improve your mathematics skills until the end of the semester.

Please see the course website for other details on the ALEKS component, including instructions for accessing the system.

**Exams:** There will be three exams given during the semester. You must bring a picture ID with a clear picture to all exams. It is possible that the exam location(s) will not be our normal classroom. If so, a few days before each exam, a link will be posted on the website as to where you will attend the exam. It is important that you are in the properly assigned room. Attending the wrong room may result in your exam not being accepted.

**Makeup Exams:** In general, there will be no makeup exams. If an absence is deemed excused, your other two exams will be averaged to account for the absence. In the event that you miss an Exam or a Conflict Exam due to a last minute emergency, your instructor must be notified by e-mail or a phone call to their office. Failure to notify constitutes an acceptance of a zero for that Exam. You must present official documentation (including a note from the Emergency Dean) excusing your absence within five business days of the exam date. It is completely my discretion whether or not your absence is deemed excused or if there will be a penalty assessed for your absence from the exam.

**Final:** The final will be cumulative. Failure to take the final exam will result in a failing grade for the semester.

Lecture X1 Noon 7:00–10:00 PM, Wednesday, May 11

**Calculators:** In the University of Illinois’ calculus sequence, historically the use of calculators has not been allowed on either homework or exams. It is expected that students can do basic arithmetic, geometry and trigonometry without the aid of a calculator. As a result, you need to begin to learn to do mathematics this way now. The use of a calculator will not be needed (and should not be used) in the completion of homework assignments. In this class, calculators will not be allowed during any exam. The use of a calculator during an examination period will be construed as cheating on that exam.

**Returned Work and Grade Disputes:** Written Homework and Exams will be returned in lecture. If you are unable to pick up your work in class, you need to make arrangements to collect it from your instructor in office hours. Also, you will have exactly one week after they day papers are passed back to discuss any grading issues. After this time, no changes will be made to your score.

**Classroom Decorum:** This is a large lecture with many people. The classroom environment should be conducive to learning by all. Thus, your behavior should be in no way disruptive to your classmates. Laptops, cell phones, MP3 players, etc. are to be turned off during lecture, and please keep chit-chat to a minimum. If your behavior is disrespectful, you will be asked to leave.

**Academic Integrity:** This course adheres strictly to the University’s **Student Code** – Article 1 Part 4 Policy on Academic Integrity. Cheating on exams or indeed any aspect of the course will result in serious implications, including potentially a failing grade in the course, University policy dictates that any charge of cheating which results in a guilty decision, however small, MUST be documented both
with the student's college and also the Senate Committee on Academic Discipline. Cheating instances will follow you and may influence decisions made about you in the future.

**Accommodations:** If you are entitled to accommodations sanctioned by DRES, your instructor needs to be notified with official documentation no later than one week into the course. Your instructor(s) need to be notified at least five business days in advance to coordinate the scheduling of your exam.

**Attendance:** If you miss a lecture or arrive late, then you need to contact someone else in the class to get the lecture notes. Do **not** e-mail your instructor (or the TA’s) for lecture notes. Also, there will often be announcements made in class about the tutoring rooms, room changes for exams, etc. Once again, if you miss lecture or arrive late, it is your responsibility to check the website or talk to someone else in the class about any important announcements.