Mathematics 105 – Section 003
Pre-Calculus Spring 2018
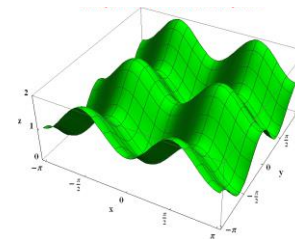
Class Schedule:	Mon & Wed 10:30 AM – 12:20 PM	**Location:**	Robinson Hall B104
Class Dates:	Mon 22 Jan – Wed 2 May	**Final Exam:**	**Wed 9 May 10:30 – 1:15 PM** (in classroom) ****Subject to confirmation by the Registrar's Office**
Instructor:	Mr. Glenn Preston	**Email:**	gpresto3@gmu.edu
Office:	**Exploratory Hall 4309**	**Office Hours:**	**Mon & Wed 4:00 – 6:00 pm or by appoint.**
			Best appointment times: Tues (10 – 5), Thu (10 – 2:30), Fri (10-3)

Prerequisites:
Appropriate score on the math placement test or successful completion of the algebra tutorial program offered through the Math Learning Center

Required Textbook & Software:

- **Textbook:** "Precalculus: Concepts Through Functions – A Unit Circle Approach to Trigonometry", by Sullivan & Sullivan, Published by Pearson, ISBN: 978-1-323-13797-0 GMU Bookstore Link *(This is a GMU custom edition of the book of the same name, ISBN 0321931041.)*
    - **You can purchase the complete book if you want** (i.e. not the custom GMU book), particularly if you find it cheaper
- **Software**
    - **MyMathLab**: This should come bundled with your textbook, and if not, you can purchase a license separately from Pearson. https://www.pearsonmylabandmastering.com/northamerica/mymathlab/students/index.html
        - See "MyMathLab Student Registration Handout for **preston24773**" emailed to you or on Blackboard under "Course Content >> Reference Material"
        - You can access MyMathLab using a link I placed on our course Blackboard site or log into MyMathLab directly. For direct access the Course ID is **preston21999** and course title is: "**math_105-003_spring_2018_PRESTON**".

Course Learning Objectives:

- **Per GMU course catalog**: "Reviews mathematics skills essential to studying calculus. Topics include equations, inequalities, absolute values, graphs, functions, exponential and logarithmic functions, and trigonometry."
    - **Notes:** This course does not satisfy the university's quantitative reasoning requirement for the BA degree. May not be taken for credit after receiving grade of C or better in any MATH course numbered 113 or higher.
- **Glenn's additional objective**: Prepare you to be successful in single-variable calculus (Math 113 & 114) and other courses requiring a solid understanding of algebra, trigonometry, and functions (e.g. polynomial, rational, exponential, logarithmic, trigonometric functions). I realize that some students will go beyond 114 to Calc III, Linear Algebra, and/or Differential Equations but first things first – you gotta get through 113/114 to get there

Philosophy and Approach: WE WILL EMPHASIZE MASTERY OF KEY CONCEPTS AND THE FUNDAMENTALS

- **Learn how to diagnose and "attack" problems** to determine the problem type, underlying concept(s), appropriate problem solving technique(s), and master the mechanics of executing the solution – this will be done by practice, practice, practice
- **Derivations of key theorems and techniques** – these are essential for learning and understanding the "5Ws" of what we are learning: the "who, what, when, where, why, and how" which is what you should focus on. We will do fewer proofs/derivations and generalized problems with parameters than when I took this course (i.e. the Stone Age) but more than you are probably used to.
    - ➔ Hopefully you will find that by understanding and remembering a core set of knowledge and using this knowledge to derive the rest of what you need from it, you will not need to memorize countless formulas that you will soon forget.
    - **It is easy to forget formulas that you don't understand and/or try to cram in at the last minute. It is much harder to forget a concept that you truly understand.**
- **Emphasize the connection between the algebraic and geometric views and approaches for understanding concepts, diagnosing and attacking problems, and applying problem solving techniques.** We'll learn/practice/master how to translate symbolic language (e.g. equations) into the corresponding geometric language (e.g. shapes, graphs) and vice versa.
- **Emphasize graphing functions by hand based on understanding the graphical properties of a core set of functions and how to translate these core graphs to match to the particular problem at hand.** This is traditionally a weak area for many

students and I am always asked: *"I have a graphing calculator – why do we have to graph by hand?"*
The reason is simple – **it's not the graph itself that is valuable it's the skills you develop to build it that are crucial.**

- Building a graph by hand forces you to analyze the equation/solution to determine its properties to and use deductive reasoning to combine these piece parts of information into a coherent picture.
- These are skills that are not emphasized/practiced enough, IMHO, and are crucial to being a good problem solver, gaining a deeper understanding of topics in <u>any</u> field, and analyzing results to see if they are valid. **"Trust me", mastery of these analytical and deductive reasoning skills will put you head and shoulders above most of your peers in the work place.**

- **Word problems** – upper-level courses in your major and related courses will be full of word problems so you need to get good at them, if not already. **Problem solving is both an art and a science.** Using an organized approach is vital to being a good problem solver. Doing enough problems of a particular type builds your intuition and insight into the best method(s) to "attack" similar problems. **There is no substitute for practice, practice, practice.**

- **Wherever possible I will introduce calculus concepts/techniques to demonstrate applications of what you will learn in this class, and to help "jump start" you for Calc I & II.** I will make clear what I am introducing simply for your information and what I expect you to know on an examination. I am NOT going to hold you accountable for learning Calculus in this class. However, Calculus is a very relevant application of concepts you will learn in this course and I do expect you to be able to apply your knowledge to real world problems.

Grades: Course Average Computation and Grading Scale

Graded Component	Nominal	Max Final	Max Mid-term
Mid-term Exams *(3)*	**60%** *(all 3 @ 20% each)*	**40%** *(**best 2** @ 20% each)*	**75%** *(all 3 @ 25% each)*
Quizzes *(on-line, 1 for each Ch. section)*	**10%**	**10%**	**5%**
Comprehensive Final Exam	**30%**	**50%**	**20%**

- A course average will be calculated for each student using all three weightings. I will use the <u>highest</u> of the three averages for each student <u>individually</u> to determine their overall course grade using the grading scale below.

F (0.0)	D (1.0)	C- (1.67)	C (2.0)	C+ (2.33)	B- (2.67)	B (3.0)	B+ (3.33)	A- (3.67)	A (4.0)	A+ (4.0)	Letter Grade (Grade Points)
< 60	≥ 60	≥ 70	≥ 72	≥ 78	≥ 80	≥ 82	≥ 88	≥ 90	≥ 92	≥ 100	Course Average

- **Grades are based on an absolute scale and <u>NOT</u> using a "curve".** Your performance will be evaluated relative to what <u>you</u> need to achieve in order to be successful in future courses not how your classmates do (i.e. a curve). Exams will be designed accordingly and **you will have opportunities to earn extra credit on exams and quizzes**.

- **IMPORTANT NOTE: There are <u>no</u> <u>extra</u> <u>credit</u> <u>assignments</u> <u>or</u> <u>any</u> <u>additional</u> <u>work</u> <u>during</u> <u>or</u> <u>at</u> <u>the</u> <u>end</u> <u>of</u> <u>the</u> <u>semester</u> <u>that</u> <u>can</u> <u>be</u> <u>done</u> <u>to</u> <u>boost</u> <u>your</u> <u>grade</u>.** I still get asked every semester – and the answer is always "no". Please don't ask.

Honor Code: THIS IS <u>VERY</u> IMPORTANT

- **It is expected that each student will conduct himself or herself within the guidelines of the Honor Code.** At a minimum, this means that sharing information of any kind about exams or quizzes (either before or during the exam/quiz) is forbidden. Any alleged issues related to the honor code will be brought to the attention of the Office of Academic Integrity. Please reread the University Honor Code and abide by it.

Class Schedule and Protocol:

- The nominal schedule for class topics, exams, and quizzes is shown on the "Course Schedule and Homework Exercises". **Modifications to the schedule may be required.** If so, I will announce them in class and post updates on Blackboard. **You are responsible for being aware of any announced, emailed, and/or posted changes.** Please check the posted schedule/homework list and/or the syllabus before asking questions that are already answered in these documents.

- **Electronic devices: Please be courteous and silence all cell phones, pagers, iPods, and other devices during class.** You are welcome to use a laptop or other electronic device to access lecture materials, capture notes, or other legitimate class-related use (but <u>NOT</u> during an exam or quiz).
  ➔ **Basic principle: Please use common sense and avoid disrupting the class and/or distracting other students.**

Attendance:

- **Attendance will <u>not</u> be taken and there is no "participation" component to your grade.** It is <u>your</u> choice/responsibility to show up for class, be prepared, and get something out of it. Regardless of whether and how much you attend class, it is vital that you keep pace with the course schedule.
- If for some reason you need to miss class, leave early, or arrive late **<u>no</u> <u>explanation</u> <u>is</u> <u>needed</u>**. I'll assume that you have a valid reason and it's for you to decide what's valid not me. **Please do not email me and ask what we did in class that day. It's up to you to find out from the course schedule, posted materials, or other students – it's not up to me catch you up.**

Mid-term Exams:

- **There will be 3 in-class mid-term exams.** Each exam will "cover" particular chapter sections as listed on the class schedule. However, application of concepts and problem solving techniques from prior chapters and prerequisite courses will also very often be required.
- ==**Regardless of the chapters being covered, each exam will have one or more occurrence involving these crucial topics/skills:**==
    - **Word problem(s) and/or physical application(s)** – you cannot get too good at doing word problems and the only way to get good at them is to do them
    - **A derivation of some type** – you will be required to derive an important result or a given formula/identity by using the fundamental concepts and techniques of the course
    - **Fundamental geometry and algebra concepts and techniques**
    - **Graphs:** Sketching a graph and/or evaluating given graph(s) to determine if it/they are correct
- ==**On each exam I will be looking for you to demonstrate/show:**==
    - ==**Good problem solving skills:**== The ability to **diagnose** a problem to determine the type of problem you are dealing with, recognize and understand the **fundamental concept(s)** involved, determine and **properly apply the appropriate problem solving technique(s)**, and correctly **execute the mechanics** of the technique(s)
    - ==**A well-organized solution with a logical and mathematically correct progression from step to step**==
        - **Show your work**; don't leave large gaps between steps, even if you understand what you are doing, you need to properly <u>demonstrate</u> that understanding by <u>properly</u> <u>documenting</u> <u>your</u> <u>solution</u>. I will give some latitude but for the most part I need to see a clear and correct path – not a collection of correct steps mixed in with incorrect steps that magically result in an answer (disorganized bullet-ridden results won't cut it in the real world where bullet-proof documentation will be needed to communicate with/convince coworkers, your boss, customers, etc.).
        - **What you write down matters** – be careful with notation; be careful with use of an equal sign ➔ both sides of an equation must be equal or else it is an invalid statement
    - ==**Correct analysis, understanding, and interpretation of a solution in the context of the problem**==
    - ==**Some type of "sanity check" on your answer**== – is your answer/solution reasonable?
        - Sometimes you can do an explicit check to prove that an answer is correct. If not, very often you can rule out answers that are not physically possible due to the constraints of the problem and/or identify unreasonably large or small values that can't possibly be correct.
        - Checking your answer gives you a chance to detect and possibly fix an incorrect answer. This is crucial in the real world where there are no answers in the back of the book, no solution manual, and not catching an obviously incorrect result can be disastrous (think possibly being fired if it happens often and/or the mistake is big enough)
        - ➔ **I expect you to routinely check your work; impossible/blatantly wrong answers will receive much less credit than one that is plausible, and possibly no credit.** On an exam if you know something is not right and simply can't find the error don't try to hide it or gloss over it! I will take this as a sign that you don't understand the problem. ➔ Rather, point out the discrepancy to me and explain that you know it is wrong and why/how you know.

<u>Comprehensive</u> Final Exam:

- **The final exam will be comprehensive and will emphasize key concepts/techniques, particularly putting them together to solve "compound" problems, applications, and understanding the "big picture" and "the 5W's".**
- **VERY IMPORTANT FINAL EXAM POLICY NOTES:** *(Refer to GMU Academic Policy AP.3.10 for details.)*
    - You <u>must</u> take the final exam at the regularly scheduled date and time unless you have excused absence in writing signed by your Dean or Academic Director.
    - GMU policy allows you to arrange an alternate day to take the final if you have a direct conflict between final exams or more than two final exams on the same day. If so, let me know at least a week prior to the final exam so we can make suitable arrangements. **My policy (not GMU's) is that requests less than 48 hours prior to the final exam will not be considered under any circumstances**. My strong preference is to schedule the alternate time the <u>day</u> <u>before</u> or <u>day</u> <u>after</u> the regularly scheduled exam but I will be somewhat flexible on a case-by-case basis.

Make-up Exams:

- **There will be <u>NO</u> make-up exams except as noted above for final exam conflicts and as discussed below for mid-term exams. Missed exams of any type will receive a score of 0.**

- **Under special circumstances and <u>WITH</u> <u>PRIOR</u> <u>ARRANGEMENT</u>,** you may be able to take a mid-term exam at an alternate time. This applies only to situations consistent with GMU Academic Policy AP.1.6.1
    - **Religious Observance** - I have done my best to deconflict the course schedule with religious holidays. However, if the schedule changes or there is a situation/conflict I am not aware of, please let me know ASAP.
    - **Participation in university-sponsored activities** (e.g., intercollegiate athletics, forensics team, dance company). For academic activities I will interpret this more broadly than strictly "GMU-sponsored" on a case-by-case basis.
    - **My strong preference is to arrange the alternate time to be <u>before</u> the exam is given rather than allowing extra time to prepare.** However that may not always be possible.
    - If you have a conflict that meets the above criteria, please identify the conflict(s) to me in the first two weeks of class (or ASAP if there is a schedule change) so that we can make suitable arrangements. **Last minute requests (< 48 hours) will not be considered under any circumstances**. ➔ Planning ahead is an important survival skill in the "real world"
    - **NOTE:** If we have to change the date(s) of any exams due to weather cancellations and/or other schedule changes not under your control, I will be much more flexible about accommodating LEGITIMATE CONFLICTS that get created as a result of the schedule change. However, this is not carte blanche for bogus excuses such as a conflict with your dog's haircut and pedicure appointment (trust me, I've heard them all). I will be the judge of "legitimate conflict".
    - **Bottom Line:** Don't play me for a fool, work with me, and give me a good reason to say "yes" and I probably will. If you try to "work the system" with some bogus excuse to make up for lack of preparation, the answer is going to be "no way".

General Exam Information:

- **NO NOTES OR REFERENCES:** All exams will be closed book and no notes or other reference material of any kind will be allowed. There may be situations where I provide a few formulas or other reference material that I don't expect you to know off the top of your head. If so, I will let you know prior to the exam what, if any, reference material/formulas will be provided.

- **NO CALCULATORS OR ELECTRONIC DEVICES OF ANY KIND WILL BE ALLOWED DURING EXAMS.** Please **turn-OFF/silence** (<u>not</u> <u>just</u> <u>vibrate</u> <u>mode</u>) and **PUT AWAY** all cell phones, mp3 players, calculators, and any other electronic devices during exams.

- **FOOD & BEVERAGES:** Please no bags of chips, full-course meals and other food that will make noise or otherwise distract fellow students. "Quiet" snacks are OK. Water and other non-alcoholic beverages are also OK.

- **NO SHARING OF PENS, PENCILS, ERASERS, PAPER … <u>ANYTHING</u>:** If you need something – see me.

Quizzes:

- There is an on-line quiz in MyMathLab for each chapter section. **Quizzes for each section will be submitted in MyMathLab. YOU CAN COMPLETE THE QUIZZES AT ANY TIME DURING THE SEMESTER UP UNTIL MIDNIGHT 8 MAY, THE NIGHT BEFORE THE FINAL EXAM.**

- I have enabled **three attempts per quiz** so that if you choose to retake the quiz after brushing up any difficult topics you may do so. I allowed 60 minutes to complete each quiz but am only selecting enough problems for approximately 20 minutes completion time as estimated by MyMathLab. **If you do take the quiz more than once, MML will report the score on the <u>last</u> attempt regardless of how it compares to the other attempts and that will be the score used for grading purposes.**

- An overall average quiz score for each student will be computed by totaling all of the quiz scores and dividing by 36. Nominally there are 43 quizzes, one for each chapter section, so this builds in about 20% extra credit ($44/36 \approx 1.19$)

- Quizzes are intended to give you early feedback regarding your mastery of the material covered in preceding lectures and homework. ➔ Use them as a diagnostic and learning tool. Doing well on quizzes is a good <u>start</u> towards doing well on exams, but it's not always an accurate predictor of exam performance. **Exams are inherently more challenging than quizzes because on a quiz you have a general idea of what's coming. An exam covers a broader set of material and on any given problem you don't necessarily know what problem type you are dealing with so more diagnosing is required.**

- Each quiz is comprised of questions constructed by MyMathLab that are fundamentally similar to homework exercises for that section. They will require off-line paper and pencil work, entering the correct answer typically by filling in the blank or multiple choice selection, and submitting the quiz when done.

- You may need/want a calculator for computation on some of the quiz questions and that is fine – just remember that you won't have one on an exam (I design exam questions to be doable by hand). You can also refer to the textbook and/or your notes as you wish during a quiz. However, I encourage you NOT to refer to the book or notes to make the quiz a true assessment of what you know and what you don't. Taking quizzes closed book better simulates a practice exam environment. **THE <u>REAL</u> BENEFIT OF QUIZZES IS NOT THE 20% COMPONENT OF YOUR GRADE, IT'S THE DIAGNOSTIC INFORMATION AND**

THE PRACTICE TO HELP WITH EXAMS. Don't water down the quiz process to maximize your quiz grade (5 to 10%) and sacrifice better performance on exams which is 90 to 95% of your overall course grade.

Homework Exercises:

- **WORD TO THE WISE: If you don't do a <mark>thorough and comprehensive</mark> job on the homework exercises, you will almost certainly fail the course – it is that simple.** I learned that lesson the hard way when I was in college and I've seen countless student fall into this trap in my courses – don't be one of them.

- **Recommended homework exercises for this class are shown on the "Course Schedule and Homework Exercises".** My intent is for you to do these exercises as shown in the book using paper and pencil. However, in case you wish to take advantage of the functionality and resources of MyMathLab, I also recreated these as "homework assignments" on MML. These assignments have no due date and there is no requirement to submit your homework. *(The problems may have slightly different constants/coefficients than the textbook but MML will have a corresponding answer for the problem you get.)*

- Homework exercises are necessary for you to learn the concepts and problem solving techniques of the course and to master them through practice, practice, practice. **You are doing the homework for YOUR benefit not mine** since homework will not be formally collected or count directly in your grade. However, homework will have a HUGE indirect impact on your grade. It may take a few attempts, but <mark>in the end, you should be able to do any homework problem start-to-finish on your own</mark>.

- I highly encourage you to read the upcoming chapter sections and try the homework BEFORE the corresponding class period. You will get much more out of the class by "knowing what you know and knowing what you don't know" ahead of time. Then in class you can focus on the harder concepts as we do them and not get stuck on basic items and miss a key concept or subtle but important point.

- You will find that virtually all homework exercise problems can (and should) be done by hand. Computation in some of the word problems may be facilitated by using a calculator and that is perfectly fine. For practice DO try to estimate an expected range of values by hand for practice (i.e. an upper and lower bound on reasonable answers). You may struggle at first but once you get the hang of it you will be amazed how easy and useful this is.

Getting Help:

- <mark>Don't let a small problem turn into a big one by getting behind – it will be very difficult to catch up</mark>. **Help options include:**
  - **Contact me** via email and/or come see me during regular office hours or make an appointment.
  - **Contact one of our undergraduate learning assistants (contact info to be provided).** They are available to help but please do be respectful of their time as they are students too.
  - **Find a buddy and/or form a study group** – there is nothing wrong with working collaboratively. However, make sure that you don't simply "go along for the ride" when working in a group. **Watching someone else do a problem – even if you understand what they are doing – is not the same as doing it yourself;** ➜ **BOTTOM LINE: WATCHING ≠ DOING**
  - **The Math Tutoring Center**, Johnson Center, Room 344; also: **Math Dept "Help With Math"**
  - **The Volgenau School of Engineering Peer Mentor program**

- **There are TONS of resources available on the web.** However, make sure you use a reliable source. Your Uncle Billy's class notes from 1990 or a random YouTube video may not be correct/or and useful. Here are two reliable sources to try:
  - **The Kahn Academy Tutorials:** www.khanacademy.org/math/precalculus. I can't attest to the validity or utility of all of Kahn Academy tutorials, but the ones I have viewed have all been excellent.

Class Web Page (Blackboard), Communication, Math 105 Web Page:

- **BLACKBOARD:** All class materials that I create, announcements, scores/grades, etc. will be posted on **Blackboard**. This and GMU email are the official communications tools for the course.

- **COMMUNICATION:** The primary way to contact me is via GMU email (gpresto3@gmu.edu).
  - To comply with GMU policy and protect your privacy, I will only send email to your GMU email address. **Please only send email to me from your GMU email so I can use the "reply" function in responding to you**. I will try to reply to emails ASAP, however, it may not be until after "close of business" as I work full time outside of GMU. I tend to check/respond to email in the morning before work, over lunch, and in the evening.
  - As an alternate means of contact, you can call me via cell phone during office hours at 703-405-0344 or send texts at any time. Texts are OK for simple administrative messages but I prefer actually talking or email for communication of any substance about the course material. You are also free to send me an image of a problem to help you with it. Please make sure that the work is legible and that the image quality is sufficient for me to read it.
- **Math 105 Web page (all sections):**   Learning Assistants: http://math.gmu.edu/math105.php

University Policies and Resources: *(selected links, far from an exhaustive list)*

- **University Policies:** Please familiarize yourself with university policies. The University Catalog, catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. All members of the university community are responsible for knowing and following established policies and procedures. (In particular see the catalog section on Academic Policies as needed.)
- **Mathematical Sciences Department:** Exploratory Hall Room 4400   math.gmu.edu   (703) 993-1460
- **Office of Disability Services (ODS):** Student Union Building I, Room 211   ds.gmu.edu   (703) 993-2474
    - If you are a student with a disability and need academic accommodations, please contact the ODS. Please do so ASAP – do not wait until the last minute. I will be flexible within reasonable limits and discussions with me will be confidential.
- **Counseling And Psychological Services** (CAPS):   caps.gmu.edu   (703) 993-2380
- **Office of Military Services:**   military.gmu.edu   (703) 993-1316

Finally, my commitment to you:

- So far it's all been me (and the university) imposing rules on you. However, rules apply to everyone, myself included, and you have a right to expect certain things from me as well. In addition to abiding by university policy myself, displaying common courtesy and standards of conduct, I have responsibilities to each student and to the 90-student class as a whole that I need to balance. **My commitment to the class is that I will:**
    - Do my best to follow my own advice/rules and lead by example – i.e. I will try to "practice what I preach". If you catch me not doing that, feel free to call me out on it ☺. I won't get mad, on the contrary I'll respect you for it if it is done politely and constructively (YES: constructive criticism, feedback, suggestions; NO: whining, playing the "blame game")
    - Be as honest, open, and transparent as possible in how I conduct the class, consistent with maintaining proper student privacy/confidentiality and the academic integrity of the course.
    - Treat every student with respect and as an individual having individual talents and needs, within the constraints of doing what is best for the class as a whole. Everyone learns a little differently and some students need more help than others.
- **Bottom Line: To be successful in this course you will need to do more than just the bare minimum ➔ Therefore I am ready, willing, and able to do more than the bare minimum required of me:** e.g. have extra office hours and review sessions, provide supplemental material, whatever I can appropriately do to help students realize their potential – but in the end I can't do the work for you, **you learn by doing and "only *you* can do the doing"**

Course Schedule and Homework Exercises – 21 Jan 2018

Wk	Day	Date		Section / Topic	Exercises (ODD unless marked ALL)
1	MON	22-JAN	F	Class Introduction & Admin F.1: Distance & Midpoint Formulas F.2: Graphs F.3: Lines F.4: Circles	**DO THESE AS NECESSARY FOR REVIEW:** **F.1:** 9, 13, 23, 31, 43, 45, 49, 57, 65 **F.2:** 9, 17, 19, 25, 27, 37-41, 49, 51, 57, 77 **F.3:** 13, 17, 23, 29, 31, 39, 43, 53, 59, 65, 111, 115 **F.4:** 7, 11, 17, 27, 37, 43-47, 57, 59
			1.1	Functions	**1.1:** 5 - 13, 27, 47, 55, 61, 67, 75, 83, 87, 89
	WED	24-JAN	4.1	Composite Functions	**4.1:** 5, 9, 13, 17, 23-27, 31, 35, 45, 51, 53, 61-67
			1.2	The Graph of a Function	**1.2:** 3-17, 23, 25, 29, 33, 35
2	MON	29-JAN	1.3	Properties of Functions	**1.3:** 7, 9, 15, 19-25, 29-41, 45, 63, 67, 81, 83
			4.2	One-to-One Functions; Inverse Functions	**4.2:** 7-15, 19, 21, 27, 29, 33-39, 45, 47, 51-57, 63, 65, 71, 89, 95
	WED	31-JAN	1.4	Library of Functions; Piecewise-defined Functions	**1.4:** 9-16 **ALL**, 17-29, 33, 35, 41, 47, 49
			1.5	Graphing Techniques: Transformations	**1.5:** 7-25, 39, 43, 45, 49-53, 59, 73, 75, 95
3	MON	5-FEB	1.6	Mathematical Models: Building Functions	**1.6:** 1, 5-13, 23, 25
			2.1	Properties of Linear Functions and Linear Models	**2.1:** 7-13, 21, 27, 29, 35, 43, 49, 51, 55, 63, 65
	WED	7-FEB	A.11	Complex Numbers	**A.11:** 5-19, 23-33, 49-55
			2.3	Quadratic Functions and Their Zeros	**2.3:** 1-10 **ALL**, 13-17, 27, 31, 35-41, 47, 53-57, 63, 65, 71, 75, 81, 85, 87, 91, 97-101, 105, 107
4	MON	12-FEB	2.7	Complex Zeros of a Quadratic Function	**2.7:** 3, 7, 8, 9-15, 25-29, 31-35
			2.4	Properties of Quadratic Functions	**2.4:** 11-21, 29, 31, 35, 37, 41, 45-55, 59, 63, 69, 71, 75-83, 87
	WED	14-FEB	2.5	Inequalities Involving Quadratic Functions	**2.5:** 3-9, 17, 21-25, 31-35, 43
			2.6	Building Quadratic Models From Verbal Descriptions	**2.6:** 1, 5-9, 13, 15, 19, 33, 35
5	MON	19-FEB	2.8	Equations & Inequalities Involving Abs. Value Function	**2.8:** 7-13, 19, 21, 29, 35-41, 47, 49, 55, 63, 67, 81
			3.1	Polynomial Functions and Models	**3.1:** 7-19, 25, 27, 35, 41, 47-55, 61-69, 73-77, 81, 105, 113, 115
	WED	21-FEB	3.2	The Real Zeros of a Polynomial Function	**3.2:** 5-13, 17, 33-37, 45-51, 57, 59, 79, 81, 93, 97, 107, 109, 113, 115
			3.3	Complex Zeros: Fundamental Theorem of Algebra	**3.3:** 1-9, 17-25, 31-37, 51
6	MON	26-FEB		**EXAM 1 (Chapters 1, 2, 4.1, 4.2, A.11, F)**	
	WED	28-FEB	3.4	Properties of Rational Functions	**3.4:** 5-11, 17, 19, 23-33, 37-47, 63
			3.5	The Graph of a Rational Function	**3.5:** 3-9, 13, 15, 21-25, 33, 37, 41, 45, 47, 57, 59, 63 a&b, 65a
7	MON	5-MAR	3.6	Polynomial and Rational Inequalities	**3.6:** 5-9, 15, 19-23, 31-37, 41-45, 49, 51, 63, 69, 73, 75, 83
			4.3	Exponential Functions	**4.3:** 7-13, 25-45, 53-57, 63, 67, 69, 81-89, 101, 107, 117, 118
	WED	7-MAR	4.4	Log Functions Properties of Logarithms	**4.4:** 4, 5-11, 15-43, 59, 63-75, 83-89, 93, 99-103, 111, 117, 119
			4.5	Properties of Logarithms	**4.5:** 1-27, 37, 39, 45-51, 57-63, 71-75, 87, 89, 97, 99
8	MON	12-MAR		SPRING BREAK: NO CLASSES	

Wk	Day	Date	Section / Topic		Exercises (ODD unless marked ALL)
	WED	14-MAR			
9	MON	19-MAR	4.6 4.8	Log and Exponential Equations Exp. Growth & Decay; Newton's Law	**4.6:** 5-9, 15-19, 29, 31, 35-43, 53-63, 89, 91, 95, 107 **4.8:** 1-21
	WED	21-MAR	CHAPTER 3 & 4 REVIEW		
10	MON	26-MAR	EXAM 2 (Chapters 3 & 4)		
	WED	28-MAR	5.1 5.2	Angles and their Measure Trigonometric Functions	**5.1:** 3-25, 29, 31, 35-45, 65, 67, 73-83, 87-91, 95, 99, 107, 113 **5.2:** 7-17, 21-35, 41-53, 59-63, 77-93, 117-121, 125
11	MON	2-APR	5.2 5.3	Trigonometric Functions (continued) Properties of Trig Functions	**5.2:** see above **5.3:** 5-15, 19-23, 27-37, 43, 45, 53, 55, 61, 63, 69-73, 77-81, 89-111
	WED	4-APR	5.4 5.5 5.6	Graphs of Sine and Cosine Graphs of Tan, Cot, Csc, Sec (no transformations) Phase Shift	**5.4:** 3-13, 17-29, 35-45, 59-71, 97, 99 **5.5:** 3-19, 25-31, 51 **5.6:** 1-7, 13-27
12	MON	9-APR	6.4 6.5	Trig Identities Sum and Difference Formulas	**6.4:** 3, 9-17, 21, 27, 31-35, 49-55, 81-91 **6.5:** 5-9 **ALL**, 11-17, 23-35, 41, 49-53, 63, 67-71, 103, 104
	WED	11-APR	6.6 6.3	Double-angle and Half-angle formulas Trig Equations	**6.6:** 1, 5-13, 19, 21, 29, 31, 35, 37, 43, 47, 51, 63, 69, 73, 91, 93, 99 **6.3:** 7-10 **ALL**, 11-15, 19, 21, 27-31, 37, 41, 57-65, 93, 97, 103, 105
13	MON	16-APR	6.1 6.2	The inverse of Sin, Cos and Tan Inverse Trig functions Continued	**6.1:** 1-3 **ALL**, 7-23, 37-57, 61-65, 77 **6.2:** 9-17, 21, 23, 37-41, 57-63, 79
	WED	18-APR	CHAPTER 5 & 6 REVIEW		
14	MON	23-APR	EXAM 3 (Chapters 5 & 6)		
	WED	25-APR	7.1	Right Triangle Trigonometry; Applications	**7.1:** 9-13, 19-27, 31, 33, 39-45, 51, 55, 63, 69
15	MON	30-APR	7.2	The Law of Sines	**7.2:** 9-13, 23-31, 37-41
	WED	2-MAY	7.3	The Law of Cosines	**7.3:** 3-15, 21-27, 33-39, 43-47
16	WED	9 MAY	<u>COMPREHENSIVE</u> FINAL EXAM: 10:30 AM – 1:15 PM, in Classroom *(Date and time subject to confirmation by the Registrar's Office)*		