MAC 1140: Precalculus Algebra (Section 236D, Fall 2017)

1 Instructor Information

Meeting place/time: MTWRF 9th period 4:05 pm - 4:55 pm (Little 233)

Instructor: Darby Smith
Office: Little 433
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Office hours: Monday 4th period, Thursday 7th period, Math Lab Friday 4th.

2 Course Content

MAC 1140, Precalculus Algebra, covers important algebraic topics necessary in working calculus problems. The course reviews college algebra as well as coordinate geometry, properties of functions, exponential and logarithmic functions in the depth needed to prepare students for calculus courses at the University of Florida.

A minimum grade of C (**not** C$^-$) in MAC 1140 satisfies three credits of the Florida state core mathematics requirement, and three hours of the university General Education quantitative requirement.

Prerequisites and Calculator policy: MAC 1140 assumes that you have prior knowledge of high school algebra techniques, as indicated by a minimum placement score of 35% on the UF ALEKS placement exam. Students should be able to perform arithmetic calculations *without a calculator*.

MAC 1140 begins with a short review of basic algebra topics found in Appendix A1 – A7 of the textbook. **You should already be competent in working this material.**

3 Course Materials

Textbook: Precalculus, 10th Edition by Larson. The text may be accessed as an ebook when you purchase the **required access code for WebAssign**, which is the publisher's online homework system. **WebAssign is required in order to do online homework**.

It is not required, but some students prefer a hard copy of the text. If so, you may purchase from the UF bookstore a loose leaf "print upgrade" version of the ebook for $40. You may also be able to find a new or used copy of the text online.

There are two ways to purchase WebAssign, which will be available on August 21. WebAssign should be accessed directly through CANVAS.

• You have the choice to "opt-in" to WebAassign and the ebook through CANVAS once classes begin. This gives you WebAssign access for a reduced price of $62.50 which is added as a charge to your student account. This is the lowest priced option for purchasing WebAssign and the ebook. **The link to "opt-in" will be provided through CANVAS once classes begin. The deadline to opt-in is September 8.**

• Students who do not "opt-in" through CANVAS by September 8 may purchase the WebAssign access code through the UF bookstore (or directly from the WebAssign website) for a price of $96. This is not the best option since the price is significantly higher than the "opt-in" price.

Access to a working computer: Online assignments and quizzes should be done on a computer, not your phone or tablet since there may be compatibility issues with WebAssign. Be sure you are using a browser that works with WebAssign. Please check for WebAssign browser recommendations: `http://www.webassign.net/manual/student_guide/c_a_system_requirements.htm`.
Any WebAssign questions should be directed to WebAssign Student Support, `https://webassign.com/support/student-support/`.

Lecture Notes: The lecture provides the main presentation of course material, and will follow as closely as possible the calendar and lecture outline provided in this guide. **Attendance is required.** You are responsible for learning lecture material missed due to an excused absence. Be on time to class. Students will earn points for class participation in lecture through group or written assignments.

You can print out the lecture noteshells posted in CANVAS or purchase a hard copy from Target Copy Center. This will make it easier to take notes and to actively engage the lecture material. Within a day after class, completed lecture notes will be available in CANVAS.

4 Grade Overview

Online WebAssign Homework: **WebAssign homework assignments will be posted 24 times during the semester and must be completed by the specified due date. You may access WebAssign through CANVAS or through the UF login at** `http://webassign.net/ufl/login.html`**. You will need to enter your Gatorlink username and password.**
Your score on each assignment will count up to a maximum 52 points, but the total number of points available is higher to offset credit lost due to technical difficulties or a missed assignment.

The homework problems are graded by WebAssign and you see your score immediately after submitting your work. You will have multiple attempts for each problem; there are aids and a link to the e-book within individual questions for immediate help. WebAssign counts your best attempt on each problem.

If you feel your answer is correct, but WebAssign marks it wrong, contact your instructor. You have one week from the due date to resolve WebAssign grading issues.

There are no makeups or drops for online homework. Do not try to complete an assignment in one sitting; start early instead of waiting until the due date to avoid missing the deadline. We do not make allowances for last minute issues with your computer or the WebAssign server being offline.

If you cannot finish an assignment on time, you can request an extension on WebAssign and you will have 48 hours after the due date to complete it. The extension button is visible after the due date; click on Past Assignments and the extension link. There will be a 5% grade penalty for those problems completed after the original due date.

Written Work/Participation: Each week, with the exception of weeks containing exams, we will engage in group written work, individual written work, or activities. These will be graded out of 4 points. The best 44 out of 48 points will be counted. The day of the week which contains this activity or group/individual work will not be announced or known ahead of time.

Quizzes: Quizzes will be given regularly during class time to ensure that you are keeping up with the material covered in class and on the homework. There will be around 10 quizzes given. The dates and content of most quizzes will be announced in class. Each will be graded on a scale of 0 to 8 points, and the top eight scores will count, to total up to 64 points. The quiz will be based on previous lectures and homework assignments as indicated on the course calendar.

Exams: During the semester, three tests will be given from 8:30 PM – 10PM on the dates shown below and on the calendar in this syllabus. These will be scored on a scale of 0 to 80 points and will consist of both a multiple-choice section and a free response, partial credit section (tearoff sheet).

$$\begin{array}{ll} \text{Exam 1} \ldots\ldots\ldots\ldots\ldots\ldots & \text{Tue. Sept. 19th} \\ \text{Exam 2} \ldots\ldots\ldots\ldots\ldots\ldots & \text{Thur. Oct. 19th} \\ \text{Exam 3} \ldots\ldots\ldots\ldots\ldots\ldots & \text{Tues. Nov. 14th} \end{array}$$

Final exam: A mandatory, comprehensive final examination will be given on Saturday, December 9th from 10 am to 12:00 pm. This two hour exam is scored on a scale of 0 to 100 and consists of multiple choice questions only (no tearoff sheet). The registrar's office determines which exam has priority in the case of a conflict.

We allow the final exam score to improve your grade on one of the semester exams. That is, if your final exam grade is higher than the lowest of your three semester exam scores, its score, prorated to 80 points, will replace that lowest test. For example, suppose your lowest semester exam score is 60/80 (75%) but you prepare well and earn 85/100 (85%) on the final. We multiply 80 (total point value of a semester exam) by that scaling factor 85/100 to get a prorated score of 68. Your lowest score of 60 will then be replaced by 68 in the gradebook.
Note: If the final exam score is lower than any of your semester exams, the original three semester test scores will count. Also, your final exam grade cannot be adjusted. The percent score for the final exam will not be replaced by any other score in this course.

Missing the final exam due to negligence will result in a <u>minimum 10 point-penalty.</u>

5   Grade Distribution

Your course grade is based on **500 points** accumulated as follows:

WebAssign online homework	**52**	**(10.4%)**
8 quizzes (best 8 of 10, 8 points each)	**64**	**(12.8%)**
Written Work/Participation	**44**	**(8.8%)**
3 semester exam scores*	**240**	**(48%)**
Final exam	<u>**100**</u>	**(20%)**
	500	**(100%)**

*The lowest exam score will be replaced with the final exam score, prorated to 80 points, if the final percent score is higher.

The total sum of points is your numerical score, which will be converted to a letter grade according to the following scale.

A	450 - 500 pts.	90% - 100%	C	335 - 364 pts.	67% - 72.8%
A$-$	435 - 449 pts.	87% - 89.8%	C$^-$*	320 - 334 pts.	64% - 66.8%
B+	420 - 434 pts.	84% - 86.8%	D+	310 - 319 pts.	62% - 63.8%
B	400 - 419 pts.	80% - 83.8%	D	285 - 309 pts.	57% - 61.8%
B$-$	380 - 399 pts.	76% - 79.8%	D$^-$	280 - 284 pts.	56% - 56.8%
C+	365 - 379 pts.	73% - 75.8%	E	less than 280 pts.	or below 56%

*IMPORTANT Any grade lower than C does not give Gordon Rule or General Education credit. Extra assignments for individual students to improve a grade are not possible. There will be no review of disputed points at the end of the semester. All grade concerns must be settled within one week of the return of the assignment. For a complete explanation of current policies for assigning grade points, refer to the UF undergraduate catalog: `https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx`**.**

6   General Information

Ways to Get Help

There are many resources available to help you succeed in the course. In addition to your instructor, resources include:

1. **Tutoring Lab located in Little Hall, room 215. Drop-in help available Monday trough Friday from 9:35 am to 3:50 pm.**

2. The Teaching Center Math Lab, located at SE Broward Hall, is a tutorial service staffed by trained math and science students to provide help with your calculus questions and homework. Tutors will be glad to provide guidance on specific problems after you have attempted them on your own. You may want to attend different hours to find the tutors with whom you feel most comfortable. You can also request free one-on-one tutoring. Check the webpage, `https://teachingcenter.ufl.edu/` for a map of the location, tutoring hours, and more. All students are encouraged to use the resources of the Broward teaching center.

3. Office of Academic Support offers free one-on-one and small group tutoring sessions to any UF students. See `http://oas.aa.ufl.edu/programs/tutoring/` for details.

4. UF Counseling Center provides information and workshops on developing Math Confidence. The center also offers counseling support in case of issues with academics, adjusting to the stress of college life, or personal challenges. Please use this resource before you get overwhelmed! You may contact the center at `http://counseling.ufl.edu/`.

5. Textbooks and solutions manuals are located at the reserve desks at Marston Science Library.

6. Private Tutors: In addition, if you feel you need more help, a list of qualified tutors for hire is available at `http://www.math.ufl.edu/files/tutorlistSpring2016.pdf`.

Accommodations for Students with Disabilities

Students requesting class and exam accommodations must first register with the Dean of Students Office Disability Resource Center (DRC). Information about the DRC is available at `www.dso.ufl.edu/drc/`. The DRC will provide a documentation letter to the student to present to the course instructor. This must be done as early as possible in the semester (i.e. at least **7** business days before the first exam), so there is adequate time to make proper accommodations.

Academic Honesty Policy

All University of Florida students are bound by the Honor Pledge, which states:

> *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.*

As such, on all work submitted for credit by students at the University of Florida, the following pledge is either explicitly required or implied:

On my honor, I have neither given nor received unauthorized aid in doing this assignment.

You should read and familiarize yourself with the Honor Code, available at `http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/`. It specifies a number of behaviors that are in violation, and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

MAC 1140 CONCEPTS

This course assumes that you have a sound algebra background. The following is a summary of some important concepts used in solving precalculus problems. The textbook and lectures provide a more complete review of these essential topics.

1. **Basic Geometric Formulas:** ($b =$ **base,** $l =$ **length,** $h =$ **height,** $w =$ **width**)

   Triangle: area $= \frac{1}{2}bh$

   Circle: area $= \pi r^2$; **circumference** $= 2\pi r$

   Parallelogram: area $= bh$

   Rectangular box: volume $= lwh$

   Sphere: volume $= \frac{4}{3}\pi r^3$; **surface area** $= 4\pi r^2$

   Right circular cylinder: volume $= \pi r^2 h$;   **surface area** $= 2\pi rh + 2\pi r^2$

   Right circular cone: volume $= \frac{1}{3}\pi r^2 h$;   **surface area** $= \pi r\sqrt{r^2 + h^2}$

   Facts about similar triangles

   Pythagorean theorem: for the right triangle below, $x^2 + y^2 = z^2$
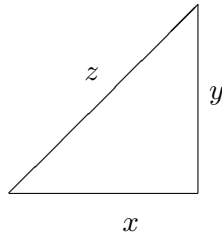
2. Factoring:

$$x^3 + y^3 = (x+y)(x^2 - xy + y^2); \ x^3 - y^3 = (x-y)(x^2 + xy + y^2); \ \textbf{etc.}$$

3. Fractions:

$\frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$, **etc.**

4. Exponents: For appropriate values of x, m and n,

$$x^n y^n = (xy)^n; \ x^n x^m = x^{n+m}; \qquad \frac{x^n}{x^m} = x^{n-m}; \ (x^n)^m = x^{nm}$$

5. Roots, including rationalizing the denominator or numerator (for appropriate values of x, m and n).

$\sqrt[n]{x} = x^{\frac{1}{n}}; \ x^{-n} = \frac{1}{x^n}$, **etc.**

6. Inequalities and absolute values:

$$|x| \le a \iff -a \le x \le a; \qquad |x| > a \iff x > a \ \textbf{or} \ x < -a$$

7. Equation solving: Finding solutions for x if

$$ax + b = 0; \ ax^2 + bx + c = 0; \ \textbf{etc.}$$

8. Basic Functions and their graphs:

$$f(x) = x; \ f(x) = x^2; \ f(x) = x^3; \ f(x) = |x|; \ f(x) = \sqrt{x}; \ f(x) = 1/x;$$

9. Exponential Functions: $\ f(x) = b^x$, $b > 0$ **and** $b \ne 1$, **such as** $f(x) = 2^x$

10. Logarithms: For a given base $a > 0$, $a \ne 1$:

1) if $x > 0$, $\log_a x = y$ if and only if $x = a^y$

2) If $m > 0$ and $n > 0$, then

$$\log_a(nm) = \log_a(n) + \log_a(m) \qquad \log_a\left(\frac{n}{m}\right) = \log_a(n) - \log_a(m)$$

$$\log_a(n^c) = c \log_a(n)$$