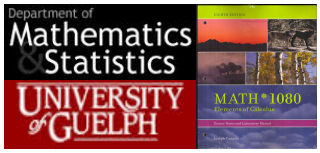

MATH*1080 Elements of Calculus I – Winter 2018
Department of Mathematics and Statistics, CEPS
University of Guelph, Guelph Campus

Course Description

MATH*1080 Elements of Calculus I F,W(3-1) [0.50] This course provides an introduction to the calculus of one variable with emphasis on mathematical modelling in the biological sciences. The topics covered include elementary functions, sequences and series, difference equations, differential calculus and integral calculus.

- Prerequisite(s): 1 of 4U Advanced Functions, 4U Adv. Functions and Calculus or equivalent
- Restriction(s): MATH*1000, MATH*1030, MATH*1200

Required/Optional Study Materials

- **Required:** *Math 1080 Elements of Calculus Course Notes and Laboratory Manual, 8th. Edition.* Author: Joseph Cunsolo, Publisher: Pearson Custom Publishing, © 2015. ***You are required to bring this manual to every lecture and lab session.***
- **Required:** CourseLink at: https://courselink.uoguelph.ca/shared/login/login.html.
  - For students that are granted a deferred final examination privilege, (see your program counsellor), CourseLink access is extended for however long is allowed by University policy, for preparation to write a deferred final examination.
  - For all students, CourseLink access is extended through to the end of the first week of classes of the following semester. Students can review their final examination grade, and make a decision about requesting a final examination re-grade.

Learning Outcomes

- Graph a foundation set of single variable functions and their inverses, including complete knowledge of domains and ranges (using interval notation), including stretches/compressions/reflections in both axes, translations, and limited function compositions. These functions include, but are not limited to: x, x^{-1}, $x^{⅓}$, $x^{½}$, x^2, x^3, $|x|$, $[[x]]$, $\sin(x)$, $\cos(x)$, $\tan(x)$, e^x, $\ln(x)$, b^x, $\log_b(x)$, 10^x, $\log(x)$.
- Intuitively explain and contrast one-to-one and onto single variable functions and their inverses, including a discussion of inverse functions, restricted domains and ranges.
- Interpret biological models as single variable functions. This includes demonstration of knowledge of periodicity, determining parameters of least squares models, allometric and exponential functions, including demonstration of an introductory understanding of half-life, population doubling, piecewise defined functions, discrete first order-linear-constant coefficient homogeneous and non-homogeneous difference equations, steady state, fixed points, limited series and corresponding closed form solutions, and some integral equations.
- Intuitively explain and contrast one sided and two sided limits of single variable functions.
- Define a continuous single variable function (on an open interval).
- Define the derivative of a single variable function in terms of the limit of a difference quotient.
- Explain, compare and distinguish details between continuous and differentiable single variable functions.

- Explain, compare and distinguish details between average rate of change and instantaneous rate of change.
- Differentiate and implicitly differentiate single variable functions using the product rule, quotient rule and chain rules as needed.
- Take log transforms as needed in order to differentiate functions of the form $f(x)^{g(x)}$.
- Compute the equation of a line tangent to a function at a point for both implicit and explicit functions.
- Compute and make use of differentials with respect to approximations of single variable functions.
- Compute and make use of Taylor series approximations of single variable functions.
- Compute second derivatives of single variable functions.
- Explain and graph increasing and decreasing single variable functions, concave up and concave down single variable functions, and local and global extrema.
- Explain, compare and distinguish details between critical points, extrema, maxima, minima, possible points of inflection and points of inflection.
- Solve simple related rate and optimization problems.
- Define the indefinite integral in terms of anti-differentiation.
- Compute indefinite integrals of single variable functions.
- Compute the area under a single variable function, and the area bounded between two single variable functions as a Riemann sums.
- Recite the Fundamental Theorem of Calculus.
- Compute the area under a single variable function, and the area bounded between two single variable functions as definite integrals.
- Compute the area of a region bounded by more than two single variable functions with an ability to reverse the roles of *x* and *y* as needed for simplification.
- Explain, compare and distinguish details between computing the value of a definite integral versus computing the area under a single variable function.

Instructor[1]	**Office**	**Meeting Times & Locations**	**Email**
S. Gismondi (Lecturer)	MACN 510	TTh 8:30 – 9:50 in THRN 1200	gismondi@uoguelph.ca
G. Stefan (Lab TA)	TBA	F 8:30 – 9:20 in RICH 2520	stefang@uoguelph.ca
T. Kielstra (Lab TA)	TBA	F 8:30 – 9:20 in RICH 2520	ikielstr@uoguelph.ca

About Course Procedures

Always bring your *partially completed* "Course Notes and Laboratory Manual" (that you purchased) to every lab and lecture session.

- Lecture material is divided into 15 sections presented over 12 weeks, and each section concludes with an exercise module.
    - *Homework Task I (not for marks).* Each exercise module is to be completed as independent study, not handed in. Answers are in our course manual.
- Lab material is divided into 12 labs presented over 12 weeks (except labs 5 & 9 where we have term tests instead AND lab 12 is done in class). Each lab consists of two sets of word problems, Parts A & B (except labs 5 and 9 – consisting only of Part B). Part A is completed together. **ONLY in the case of a holiday ➔ you are responsible for Part A. Solutions are posted.**
    - *Homework Task II (not for marks).* Part B is to be completed as independent study, not handed in. Answers for Part B are in our course manual.

[1] Office hours posted online. See "Office Hours" in the navigation bar.

- There are **three online assignments** (worth 5% each), based upon the material presented in the preceding two labs, running Monday through Friday of weeks 3, 7 and 11. *Please refer to our lecture and lab schedule on the last page of this outline.*
- There are **two "Work it out FIRST. Choose the correct answer - guaranteed to be there. Otherwise it's wrong so do it again." MULTIPLE CHOICE term tests taken in lab time** (worth 20% each), based upon lecture, module and lab material, scheduled in lab in weeks 5 and 9. Recall that there is no Part A for both labs 5 & 9 (Part B is independent study).

Assessment Procedures

15% Online Assignments (3) @ 5% each: As indicated earlier, *there are three online assignments in weeks* 3, 7 and 11. Each assignment normally accounts for 5% of your final grade. You are allowed to use a calculator, unlimited attempts and unlimited time. Special accommodation? See **Accessibility**.

- **Online Assignment 1, taken Monday January 22 -- Friday January 26.**
- **Online Assignment 2, taken Monday February 26 -- Friday March 2.**
- **Online Assignment 3, taken Monday March 26 -- Monday April 2.**

☞ **THERE ARE NO ALTERNATE ONLINE ASSIGNMENT DATES NOR MAKE-UP ONLINE ASSIGNMENTS. Missed online assignment marks are automatically transferred to the final examination.** ***These online assignments are gifts that award you marks for studying material that you are tested/assessed on, in term tests and the final examination. YOU ARE EXPECTED TO ACHIEVE PERFECT ON EACH ONLINE ASSIGNMENT.***

40% Multiple Choice In Lab Term Tests (2) @ 20% each: As indicated earlier, *there are two multiple choice term tests, 50 minutes each, taken in lab, in each of weeks 5 & 9.* Each term test normally accounts for 20% of your final grade. Each term test is made up of 20 multiple-choice questions. ***These term tests are intended as "evaluation" – you have exactly one attempt in lab.*** So please be sure to have reviewed and prepared yourself as best you can i.e. see the sample term tests & solutions posted online. Special accommodation? See **Accessibility**.

IF your final examination grade is better than your term test grade(s), your term test grade(s) will automatically be replaced by your final examination grade. i.e. this applies to BOTH term tests.

- **Multiple Choice TAKEN IN LAB Term Test I, Week of February 5 -- 9**
- **Multiple Choice TAKEN IN LAB Term Test II, Week of March 12 -- 16**

☞ **THERE ARE NO ALTERNATE TERM TEST DATES NOR MAKE-UP TERM TESTS. Missed term test marks are automatically transferred to the final examination.** But don't get the idea that this is a gift. You'll have to work hard and plan for solid performance on the final. While sometimes you may not be prepared as well as you'd like, and it's your own decision to skip a term test (and opt for an increased weight automatically placed upon the final examination), it's NOT advised!! Don't 'mortgage your future', and NEVER miss two term tests. Unlike final examinations, 1) term tests provide opportunities for feedback and 2) in the case of poor performance, there's another term test or the final examination, an opportunity to improve. Term tests contribute less to your final grade than does the final examination. Poor performance on a term test has less impact upon your final grade than does poor performance on the final examination, especially a more heavily weighted final examination; *and* they provide 'final examination like' writing conditions, a great way to gain examination writing experience in preparation for the 'biggy', the final examination. Term tests encourage you to prepare and develop skill through-out the semester. That's WHY we do it. Knowledge and capability in mathematics builds in a 'pyramidal' fashion. You need foundation knowledge and practice to move forward. Preparing for the final examination late in the semester is not nearly

as ‘foundation building’ as is a module-like, semester long approach. Besides, if you can’t make small amounts of time available for study during the semester, can you be sure that you’ll make large amounts of time available at the end of the semester? **NOTE:** After all term tests are graded, we post marks/solutions (see *All Contents*)/ScanTron responses online. We’ll announce this in class, and also on CourseLink. Students should then check online.

- **Practice Graded Term Tests for Study and Feedback in Advance of Term Tests**
  ☞ You'll also find a practice term test that will be graded by TAs in order to provide feedback about your solution techniques in ADVANCE OF EACH TERM TEST. THE GRADE DOES NOT COUNT TOWARD YOUR COURSE GRADE. IT'S NOT EVEN RECORDED. There’s a practice test for TTI and for TTII, posted on CourseLink. Print these practice tests and complete them - on your own or together with a friend before Labs 4 (TTI) and 8 (TTII). Then bring them to Lab 4 / Lab 8. TAs will collect them, grade them, and return them to the orange "OUT" boxes labelled MATH1080 on the third floor MACN, the south end of the hallway. Pick-up your graded practice term test the following week, and BEFORE the actual term test AND be sure to check the solution set (available online at 17:30 the Friday of week 4 / 8). Learn where and why you went wrong, and most importantly how to correct yourself so that you don't make these same mistakes again - especially on upcoming term tests! That means setting appointments with lab TAs, attending office hours, asking questions, going to the Mathematics Learning Center and reviewing your work with a TA, working and studying with a friend, attending SLGs and perhaps even arranging time with a paid tutor - whatever works best. **NOTE:** Be timely! Pick-up your graded practice tests promptly *because* all materials returned to the orange boxes are removed at the end of weeks 5 and 9.

45% Final Examination (1) @ 45%: *There is one two-hour final examination composed of 45 “Work it out first” multiple choice questions, similar to module questions, worth 45% of your final grade.*

- **Final Examination. Tuesday April 17, 2018, 14:30-16:30. Location TBA.**
- ☞ **THERE IS NO ALTERNATE FINAL EXAMINATION DATE NOR MAKE-UP FINAL EXAMINATION excepting special circumstances. THAT IS, *if you miss the final examination, immediately contact your program counsellor. ONLY the program counsellor (not the professor) is allowed to make decisions concerning granting of deferred examinations, scheduling of deferred examinations, academic consideration etc.***

Just as TT I and TT II each tested four weeks of material worth 20% each, the final examination will test the last four weeks of material as if we had a third term test. That is, about 20 out of 45 MC questions are likely to come from content presented in the last 4 weeks of the course. The remaining questions will come from all course content with no special emphasis. Special accommodation? See **Accessibility**.

Accessibility

The services of Student Accessibility Services (SAS) are available to students registered at the University of Guelph who have a permanent disability. This includes full-time or part-time, graduate and undergraduate students. The SAS also has a number of services available to students with temporary disabilities. Students must provide appropriate documentation from a medical or mental health professional to verify their disability. You must identify yourself as early as possible and no later than the 40th class day in the semester in which you are requesting accommodation and/or support. Failure to do so will mean that accommodation cannot be guaranteed for that semester. See https://www.uoguelph.ca/csd/current-students for complete details and procedures.

All students registered with SAS 1) are accommodated as per SAS recommendations, AND, 2) write/take their term tests and their final examination via SAS. This means contact SAS ASAP – bring this course outline with you when you meet. Then you can be accommodated.

HELP!!! Free HELP from the Mathematics & Statistics Department

The Mathematics and Statistics Department operates a drop-in learning centre. This is YOUR RESOURCE for support with lab and course-work related problems. The TA's ARE FRIENDLY. They KNOW MATH*1080 material, and they are usually AVAILABLE TO HELP YOU 6 hours a day! Our learning centre is located on the third floor of the McLaughlin Library. During the 12-week scheduled class times, scheduled 'open times' are:

Days	Monday	Tuesday	Wednesday	Thursday	Friday
Times	09:30-15:30	10:00 - 16:00	09:30-15:30	10:00- 16:00	09:30-14:30

MORE HELP!!! Free HELP from Your Own Supported Learning Groups (SLG)

The SLG Program has provided course specific support for thousands of students since 1998.They are an enthusiastic group of undergraduate students and professional staff who are dedicated to helping students succeed. SLG sessions are free peer-led study groups. They help you navigate course material and will show you new ways to approach difficult concepts. The sessions are designed for everyone in the class, regardless of your comfort with the material. http://www.lib.uoguelph.ca/get-assistance/studying/slgs.

EVEN MORE HELP!!! First: Learning Resources for First-Year Students

First is a collection of resources, services, and technologies designed to help make the transition to university learning smooth and successful. Visit https://admission.uoguelph.ca/template.aspx?SiteID=bfdc36b8-2456-47fe-8c67-10366a3a3b97.

Course Policies

No Calculator Rule

Regarding both term tests and the final examination, calculators are NOT ALLOWED. Additional aids are not allowed e.g. notes, books, communication or scrap paper.

Group Work

There is no group work. All assessment is generated by independent completion of online assignments, term tests and the final examination.

About Recording of Labs, Lectures, Conversations, Casual Meetings, Office Hour Meetings and All Written, Recorded, Presented Materials, Utterances, Stories and EVERYTHING related and vaguely related to information acquired in the course of study here at the University of Guelph IS ALLOWED TO BE RECORDED - FOR THE COMPONENT THAT GISMONDI TEACHES a.k.a lectures. THIS IS GISMONDI'S WRITTEN PERMISSION that material recorded is restricted for use with MATH1080. Copy whatever you need (in GISMONDI'S lecture and office hour times) in order to successfully complete the course. BUT do not violate copyright laws, nor violate privacy laws e.g. postings to YouTube etc., slanderous comments in chats, messages, tweets etc. Of special note, the textbook is copyright material from Pearson Publishing – author Joe Cunsolo. See

http://www.cmec.ca/Publications/Lists/Publications/Attachments/291/Copyright_Matters.pdf for details, limited permissions etc. regarding copyright materials in Canada.

About Illness & Sudden Illness

If prior to a term test or the final examination, and even during a term test or final examination, you are/become ill and are unable to complete, YOU MUST 1) seek help for your illness that very instant and 2) later when you become well, obtain documentation as per "Undergraduate Degree Regulations: Illness or Compassionate Reasons". You will be excused from the term test or final examination and will complete these requirements as per regulation. However, ***you cannot re-write, be excused or change the grade that you receive, if AFTER WRITING A TERM TEST OR EXAMINATION, you indicate that you were/became ill. Illness (inc. scheduled surgery) or compassionate reasons can be accommodated in advance/during assessment in accordance with University policy, but RARELY after assessment. THEREFORE DO NOT INCLUDE MEDICAL NOTES, WRITTEN EXPLANATIONS RE: PERFORMANCE ISSUES ETC. ATTACHED TO/WRITTEN ON YOUR TERM TEST OR EXAMINATION (OR IN A SAS ENVELOPE). THE TERM TEST OR EXAMINATION CANNOT BE GRADED IN AN UNBIASED WAY. THIS KIND OF COMMUNICATION IS INTERPRETTED AS A REQUEST TO BE EXCUSED FROM THE TERM TEST / EXAMINATION.***

"Not Withstanding" Clause a.k.a. What About Unforeseen Fateful Events?

When fate intervenes e.g. snow days, emergencies, work disruptions & other fateful events, and the conduct of the course falls outside of my control in a way that lectures, labs, online assignments / term tests etc. might need to be cancelled/rescheduled, then please refer to CourseLink for further instruction ***which may now deviate in any manner whatsoever from published course outlines, past cases and any other commitments previously made by me with or without knowledge of these unforeseen fateful events.***

➔ ***IN THE EXTREMELY UNLIKELY EVENT THAT ALL COMMUNICATIONS FAIL (strike/lock-out, pandemic, war, terrorism etc., AND EVEN CourseLink is unavailable):***

1. ***DURING THE FIRST TWO WEEKS, try to keep to our schedule (last page) independently however you can manage i.e. try and stay current so that it'll be easier when we finally resume from where we left off.***
2. ***BEYOND TWO WEEKS, it's a disaster. We'll worry about it later, if ever.***

Miscellaneous Comments

- PERSONAL TUTORS: If you would like to find/work with a private tutor, then perhaps work with all of the TA's in the learning centre, and if you find that you get along especially well with a particular TA, why not ask them if they would tutor privately? Also, try these links.
  - https://www.uoguelph.ca/tutoring/welcome-tutoring-guelph-tag
  - http://www.kijiji.ca/b-tutor-language-lessons/guelph/math-tutor-guelph/k0c169l1700242
  - https://helphub.me/networks/university-of-guelph
- UNIVERSITY RELATED EVENTS THAT WILL BE ACCOMMODATED re: TERM TEST CONFLICTS. For University related events only, e.g. sporting events, if you need to be away from campus at the same time that a term test is scheduled, then ask your coach to contact me. I'll try (NOT promise) to arrange for you to write the term test under your coach's supervision while you are away.
- SHARING COURSE MATERIALS: UNIVERSITY OF GUELPH BASED TEACHING ORGANIZATIONS e.g. SLG's: We completely support our SLGs. Please feel free to share course materials with SLG members and leaders.

- SHARING COURSE MATERIALS: NON-UNIVERSITY OF GUELPH BASED TEACHING ORGANIZATIONS: We neither endorse nor support these groups, e.g. Prep 101. They exist separate from, and independent of the University. They may or may not be useful, credible, helpful etc., they are in no way associated with the University, and they may or may not act in your best interests. We do not provide materials, hints, notes, sample tests, examinations, texts, course outlines etc. to these groups, no matter what you may be shown and/or told. Whatever materials these groups develop, promote, claim as relevant to the course etc., these materials are in no way sanctioned by us and/or the University. While these groups can be helpful to you, they are not accountable to the University, unlike University of Guelph instructors that are accountable for their decisions - a benefit and security that you surrender in dealing with these groups. Do not copy / provide any course materials to these organizations i.e. copyright issues to be resolved. Contact me directly if you are asked to share your materials with these groups.

University Policies

E-mail Communication
As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement
When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the undergraduate calendar for information on regulations and procedures for Academic Consideration.

Drop Date
Courses that are one semester long must be dropped by the end of the fortieth class day – **FRIDAY MARCH 9**; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

Accessibility
The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

Academic Misconduct
The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study;

faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

MATH1080W18 "Get to work!!" Schedule

Lecture, Lab & Module Schedule. Post this schedule on your fridge! Do it now! Right now!	Online Assignments & Term Test Schedule
Week 1: Jan. 8-12 • Lectures as regularly scheduled. Complete module(s) 1. • Approx Pgs: 1-28. Interval notation, domain, range, graphs of single variable functions, even/odd functions, translations, reflections, stretches, lines, quadratics, polynomials. • Lab 1: Complete Part B as independent study.	
Week 2: Jan. 15-19 • Lectures as regularly scheduled. Complete module(s) 2 & 3. • Approx Pgs: 29-60. Algebra of functions, function composition, one-to-one and onto functions, inverses, exponential and log functions, growth and decay models, introduction to the "drug" model and repeated dosing. • Lab 2: Complete Part B as independent study.	
Week 3: Jan. 22-26 • Lectures as regularly scheduled. Complete module(s) 4. • Approx Pgs: 61-90. Periodic functions, trigonometry and graphing and application to modelling. Allometric and exponential functions under log transforms, graphing and log-log scalings. • Lab 3: Complete Part B as independent study.	**Online Assignment 1 taken Monday - Friday (5%). Usually covers lecture, module and lab material from weeks 1 & 2. Check CourseLink, always attend lecture and ask about these details!**
Week 4: Jan. 29 - Feb. 2 • Lectures as regularly scheduled. Complete module(s) 5 & 6. • Approx Pgs: 91-118. Computing parameters of allometric and exponentials models. Introduction to discrete models, sequences and series. • Lab 4: Complete Part B as independent study.	**COMPLETE & SUBMIT your practice TTI – in lab 4 (see CourseLink). Then pick it up to get feedback (orange "OUT" boxes on the third floor of MACN – south end of the hallway) – BEFORE TTI !!!**
Week 5: Feb. 5-9 • Lectures as regularly scheduled. Complete module(s) 7. • Approx Pgs: 119-132. More sequences and series, general terms, closed form solutions, and first order linear constant coefficient difference equations. • Lab 5: No Part A – Term Test instead. Complete Part B as independent study.	**"Work it out first" Multiple Choice Term Test I (20%) - in LAB in week of Feb. 5-9.** **Term Test I usually covers lecture, module and lab material from weeks 1 through 4 inclusive. Check CourseLink, always attend lecture and ask about these details!**
Week 6: Feb. 12-16 • Lectures as regularly scheduled. Complete module(s) 8 & 9. • Approx Pgs: 133-160. More difference equations i.e. steady state, equilibria, graphing difference equations, cobwebbing and ΔX_n. • Lab 6: Complete Part B as independent study.	
**** READING WEEK, February 19-23. NO CLASSES and NO LABS. ****	
Week 7: Feb. 26 - Mar. 2 • Lectures as regularly scheduled. Complete module(s) NONE. • Approx Pgs: 161-188. One and two sided limits, continuity, difference quotients interpreted as slopes of secant lines and slopes of tangent lines. The derivative. • Lab 7: Complete Part B as independent study.	**Online Assignment 2 taken Monday - Friday (5%). Usually covers lecture, module and lab material from weeks 5 & 6. Check CourseLink, always attend lecture and ask about these details!**
Week 8: Mar. 5-9 • Lectures as regularly scheduled. Complete module(s) 10. • Approx Pgs: 189-216. Product and quotient rules. Tables of derivatives. Chain rule. Tables of foundation applications of the chain rule. Implicit differentiation. Higher order derivatives. Related rates. Using log transforms/compute derivatives. • Lab 8: Complete Part B as independent study.	**COMPLETE & SUBMIT your practice TTII – in lab 8 (see CourseLink). Then pick it up to get feedback (orange "OUT" boxes on the third floor of MACN – south end of the hallway) – BEFORE TTII !!!**

Lecture, Lab & Module Schedule. Post this schedule on your fridge! Do it now! Right now!	Online Assignments & Term Test Schedule
Week 9: Mar. 12-16 • Lectures as regularly scheduled. Complete module(s) 11 & 12. • Approx Pgs: 217-240. Critical points, Maxima, minima inc. local versus global, first derivative test for max & min, concavity. Curve sketching . Max & min problems, optimization. The differential and applications. • Lab 9: No Part A – Term Test instead. Complete Part B as independent study.	**"Work it out first" Multiple Choice Term Test II (20%) - in LAB in week of Mar. 12-16.** **Term Test II usually covers lecture, module and lab material from weeks 5 through 8 inclusive. Check CourseLink, always attend lecture and ask about these details!**
Week 10: Mar. 19-23 • Lectures as regularly scheduled. Complete module(s) 13. • Approx Pgs: 214-276. Taylor series. The anti-derivative, indefinite integrals. Chain rule in reverse and a table of integral rules. Riemann sums and applications. Total change. • Lab 10: NO LAB this week. Complete Part A and Part B as independent study.	
Week 11: Mar. 26-29 • * HOLIDAY * on Friday Mar. 30 (Good Friday). • Lectures as regularly scheduled. Complete module(s) 14. • Approx Pgs: 277-287. Fundamental Theorem of Calculus. Algebra of definite integrals. Area under a curve versus computing a definite integral. • Lab 11: Complete Part A and B as independent study.	**Online Assignment 3 taken Monday – Monday (of the following week) (5%). Usually covers lecture, module and lab material from weeks 9 & 10. Check CourseLink, always attend lecture and ask about these details!** **NOTE: Friday week 11 is a holiday. Complete Lab 11 Part A independently.** **"Work it out first" Final Examination (45%). Date: Tuesday April 17, 2018; Time: 14:30-16:30; Location: TBA** **Covers all lecture, module and lab material from all weeks.**
Week 12: Apr. 2-6 • Lectures as regularly scheduled. Complete module(s) 15. • Approx Pgs: 288-296. Area bounded by two curves. Area bounded by more than two curves, and reversing the order of integration. • Lab 12: Complete Part B as independent study.	