

**Syllabus**  
**MTH 1126 (TDAA) - Calculus II**  
**Spring 2017**

**Time:** MTWF 10:00 am –10:50 am  
**Location:** 228 McCall Hall (MSCX 228)  
**Instructor:** Pat Rossi  
**Office:** 227C McCall Hall (MSCX 227C); (334)670-3588; [prossi@troy.edu](mailto:prossi@troy.edu)  
**Office Hours:** M, T, W, F 11:00-11:50; 1:00-2:00  
W 5:00-5:50  
T 12:00-12:50  
Or By Appointment

**Text:** Calculus with Analytic Geometry, 10<sup>th</sup> Edition, by Larson and Edwards Brooks/Cole – Cengage Learning). WebAssign License.

**Calculation of Final Average**

Test Average	60%
Final Exam	25%
Homework Assignments & Quizzes	15%

**Assignment of Final Grade**

<b>Final Average</b>	<b>Grade</b>
90-100	A
80-89	B
70-79	C
60-69	D
0 -59	F

**NOTE: Final Grades Cannot be Given Out Over The Phone**

**Tests & Quizzes**

Tests will be given on the dates below. On the Friday of each week in which we do NOT have a test, we will have a quiz. The quizzes will be on formulas coming from the “Formulas You Should Know” Handout that appears on my website. Tests and homework assignments will be returned to the students (to keep) after they have been graded, but will remain the permanent property of the Instructor even after they are returned to the students.

<b>Test</b>	<b>Date</b>
Test #1	Feb. 15 covers material introduced in class up to and including Feb. 13
Test #2	Mar. 22 covers material introduced in class up to and including Mar. 20
Test #3	Apr. 12 covers material introduced in class up to and including Apr. 10
Test #4	Apr. 26 covers material introduced in class up to and including Apr. 24

**Final Exam:** Our Final Exam will be on **Monday, May 8, from 2 - 4:00 pm**. Students will not be allowed to take the Final Exam early. Exceptions WILL NOT be made for those who have made travel arrangements (e.g. purchased an airplane ticket) for a date on, or before, the Final Exam.

### **Makeup Policy:**

There will be no make-up tests given during the semester. Make-up tests will be given on Wednesday, May 8 at 10 am **for those students who missed a test** during the course. **No student will be allowed to make up more than one missed test.** Notice that these make-up tests are only given to students who **missed a test** (for whatever reason) during the course. This implies that you may choose to miss a test if you feel that you are not ready. Don't do this indiscriminately - You may need to miss a test later on in the course, due to extreme illness, etc. Nevertheless, the option remains. One catch - once you enter the room to take an exam, you must take the exam. You will not be allowed to enter the room, look at the exam, and then decide whether or not you want to take the exam.

### **Incomplete Policy**

A grade of "I" (incomplete) may be given in the case of illness or emergency situations occurring towards the end of the semester, which make it impossible for the student to complete all course work by the end of the semester in such a way that the student's grade accurately reflects his or her mastery of the course material up to the time of the illness or emergency. Such grades are given very sparingly, and only in a case of genuine hardship. Time limits for removing an incomplete can be found in the Undergraduate Bulletin.

**Homework Assignments:** Graded Homework Assignments will be from the **<http://www.webassign.net>** website. Each assignment, along with its due date, will be announced in class as well as through your Troy e-mail account (So check your e-mail regularly and keep your mailboxes cleaned out!). To register on the website, go to the address **<http://www.webassign.net>** and enter the following information:

**User:** (Your student ID number)  
**Institution:** troy (all lower case letters)  
**Password:** calculus (all lower case letters)

On the next page enter your ***access code*** (if you did not get an access code with your textbook, you can buy one at the Bookstore or you can buy one online simply by following the prompts on the WebAssign web-page.)

### **AMERICANS WITH DISABILITIES ACT:**

Troy University supports Section 504 of the Rehabilitation Act of 1973 and the Americans With Disabilities Act of 1990, which insure that postsecondary students with disabilities have equal access to all academic programs; physical access to all buildings, facilities and events; and are not discriminated against on the basis of disability. Eligible students, with appropriate documentation, will be provided equal opportunity to demonstrate their academic skills and potential through the provision of academic adaptations and reasonable accommodations. Further information, including appropriate contact information, can be found at the link for Troy University's Office of Human Resources at:

**<http://www.troy.edu/humanresources/ADAPolicy2003.htm>**

### **Attendance Policy:**

More than six (6) absences (other than University Excused absences) will result in a grade of **F**.

**Other Matters:** Behavior such as wearing headphones in class, sleeping in class, exiting class during a lecture, talking to classmates during the lecture, reading a newspaper during class time, reading a book other than the assigned text for the course during class time, or doing work not assigned in this class during class time will not be tolerated. (If you are sick, or need to use the restroom, raise your hand and ask to be excused.) Also, I do not “grade” students’ tests immediately after the test is turned in – please don’t ask me to grade yours. Also, I don’t show the solutions to problems on a test to students immediately after they turn in their test – please don’t ask me. The solutions are posted on my website within a reasonable amount of time after the test is given, so there is no need for me to work the problems out at the request of each person who asks.

### **Academic Honesty**

Academic misconduct shall be handled according to the guidelines listed in the *Oracle*.

### **Cell Phones and Other Electronic Devices**

Troy University no longer has a cell phone policy. This means that I will not prohibit students from having a cell phone, tablet, etc. on their desk, except while tests are being given. I do not like for students to have such devices in plain sight and engaged in their use during my lectures - it’s discourteous and it’s a distraction to the person who has the device and to others around him/her. Considering how much students pay for each credit hour of instruction, being engaged in using such devices during class time also wastes money that students pay for tuition. But, since there is no longer any University policy regarding the use of such devices in the instructional environment, there is not much that I can do to prohibit their use (except during tests). While taking tests, neither calculators nor cell phones, tablets, etc. will be allowed on your desk and/or in your work environment. Particularly, the use of a communication device to violate the Troy University *Standards of Conduct* will result in appropriate disciplinary action (See the *Oracle*.)

It would be a courtesy for students who are expecting an emergency call to inform me before the start of class. Students receiving calls that they believe to be emergency calls should answer quietly without disturbing the teaching environment. If the call is an emergency, they should move unobtrusively and quietly from the instructional area.

### **Study and Preparation:**

To increase your chances for success, do the assigned homework when it's assigned and ask questions either in class or during office hours on exercises that you find difficult. Most of the homework that is assigned will not be collected and/or graded. Nevertheless, you are still expected to do the assignments - and to a great extent, your conscientiousness in this matter will determine your success in the course.

I highly recommend the services of the *Natural Science Center*. It is located in Room 126 of Eldridge Hall and the phone number is 670-3139. The *Center* has tutors available in Biology, Chemistry, Mathematics, and Physics. I encourage you to visit the *Center* early in the semester so that you can become familiar with their services. Through their tutors, they provide an invaluable service and many of my former students have benefitted greatly from their help.

For your benefit, **practice tests and other material are available on my website**. These practice tests are a good way to prepare for the tests, and you are encouraged to use them.

Consider them to be a “tune up” for tests, rather than a substitute for doing the assigned homework. To get to my website:

1. My website address is: <http://www.pat-rossi.com>
2. On the left hand side, click “Academic Links for Troy University Students”
3. Under “Course Links” click “MTH 1126”

**Letters of Recommendation:** I will gladly write letters of recommendation for students who receive an “A” in the course, who have reasonably good attendance, who do not cause discipline problems, and who do not text/use cell phones, etc. in my class; provided that the letters are for graduate/professional school and/or employment in a field related to your academic major. Letters of recommendation for employment must be for positions that will be filled in the near future. (e.g., don’t ask me to write a letter of recommendation for a teaching position, when your date of graduation is over a year away.) Such letters are *confidential*. Also, if you want me to write a letter of recommendation, you must ask me *personally*. (i.e., do not put a note in my mailbox asking me for a letter of recommendation.) Oh – one more thing – the better I know you, the more I will be able to say about you in my letters of recommendation. *Therefore, it is to your advantage to come and see me, and ask for help during office hours.* This is how I get to know my students. Remember – I do not write letters of recommendation for students who have texted in my class. If I see you texting, etc. in my class, I put your name on my “Text List” in my office. When someone asks me for a letter of recommendation, I check my list. If your name is on my “Text List,” I will not write a letter in your behalf. **SO DON’T TEXT IN MY CLASS!!!**

**Important Dates** (Which Are Not Listed Elsewhere in the Syllabus)

Jan 16	Holiday – MLK Day – No Class
Jan 17	Last Day to Withdraw (from Summer Session A) without financial penalty
Jan 17	Last Day to Add a Course (in person or on Student Planning)
Jan 17	Last Day to Drop a Course without financial penalty (in person or on Student Planning)
Mar 6-12	Spring Break - No Classes
Mar 20	Last Day to Make Up Incompletes from Previous Semester
Apr 7	Last Day to File Intent to Graduate for Summer Semester
May 3	Dead Day

**Course Description:** Applications of integration (such as volume, arc length, work, and average value), techniques of integration, indeterminate forms, infinite series, polar coordinates, and parametric equations. *Prerequisite: MTH 1125.*

## **HOMEWORK EXERCISES**

### **Set #1**

p. 251            1, 7, 9; 11-31 every other odd

### **Set #2**

p. 251            13-29 every other odd

### **U-Substitution**

### **Set #3**

p. 301 5-25 every other odd, 33, 37, 41, 47

#### **Set #4**

p. 301 7-23 every other odd, 35, 39, 49

#### **Fundamental Theorem of Calculus - Part #2**

#### **Set #5**

p. 288 5-21 every other odd, 27, 31, 35, 39

#### **Set #6**

p. 288 7-19 every other odd 29, 37, 41

#### **U-Substitution and Definite Integrals**

#### **Set #7**

p. 301 13, 41, 43, 65-75 odds

#### **Natural Logarithms**

#### **Set #8**

##### **Properties of Natural Logs Handout**

p. 325 19-31 every other odd; 41-57 every other odd

#### **Set #9**

p. 325 21-33 every other odd; 43-59 every other odd  
p. 334 1-25 every other odd; 31, 35, 39

#### **Set # 10**

p. 334 3-23 every other odd; 33, 37

#### **The Exponential Function**

#### **Set #11**

p. 352 1-21 every other odd (Algebraic Properties as the inverse of  $\ln(x)$  )  
33-49 every other odd (Differentiation)

## Set #12

p. 352      3-19 every other odd (Algebraic Properties as the inverse of  $\ln(x)$  )  
35-51 every other odd (Differentiation)  
91-115 every other odd (Integration)

## Set #13

p. 352      93-113 every other odd (Integration)

## Bases Other Than e

### Set #14

p. 362      1-7, odds; 19, 21;  
37-45 odds  
71-81 odds

## Inverse Trig Functions

### Set #15

p. 372      3-9 odds  
15-19 odds  
21, 25, 29, 31

### Set #16

p. 372      23, 27, 31, 35  
39-47 every other odd 53, 57 (Differentiation)

### Set #17

p. 372      41-49 every other odd, 55 (Differentiation)

### Set #18

p. 380      1-29 every other odd (Integration)

### Set #19

p. 380      3-31 every other odd; 33-41 odds (Integration and Completing the Square)

## Area

### Set #20

p. 263      1-11 odds (Summation Notation)  
p. 273      9, 11 (limit of a Riemann Sum as a Definite Integral)

### Set #21

p. 442      1-11 odds; 17-29 every other odd. Solve by sketching the  $i^{\text{th}}$  rectangle, computing the area of the  $i^{\text{th}}$  rectangle, forming the Riemann Sum, writing the limit of the sum, replacing the limit of the sum with

the proper integral, and integrating.

### Set #22

p. 442 19- 27 every other odd; 37-41 odds. Solve using the integral of  $f(x) - g(x)$  (i.e., the “f – g method.”).

#### Properties of Definite Integrals

p. 273 13-21 odds (The Definite Integral as an Area)  
p. 273 23-27, 31 odds (The Definite Integral as an Area)  
p. 273 33-41 odds (Properties of Definite Integrals)

### Volumes of Revolution - The Disc Method

#### Set #23

p. 453 1-29 every other odd

#### Set #24

p. 453 3-31 every other odd

### Volumes of Revolution - The Shell Method

#### Set #25

p. 462 1, 5, 9, 15, 19, 23

#### Set #26

p. 462 3, 7, 11, 17, 21, 15

### Arc Length and Surfaces of Revolution

#### Set #27

**Arclength Problems** (handout from my website)

p. 473 5-11 odds

### Work

#### Set #28

p. 483 5, 7, 9 (spring problems)

#### Set #29

p. 483 19, 21, 23 (water pumping problems)

### Summary of Basic Integration Forms

#### Set #30

p. 512 13-41 odds

### **Integration by Parts**

#### **Set #31**

p. 521 1-9 odds; 11-27 every other odd; 39, 43, 47

#### **Set # 32**

p. 521 13-29 every other odd; 41, 45

### **Tabular Method**

#### **Set #33**

p. 521 49, 51, 53

### **Trig Integrals (Integrals of Trig Functions Raised to a Power)**

#### **Set #34**

p. 530 1-31 every other odd; 47, 51, 55

#### **Set #35**

p. 530 3-29 every other odd; 49, 53

### **Trig Substitution**

#### **Set #36**

p. 539 1-19 odds

#### **Set #37**

p. 539 21-35 odds

### **Completing the Square**

#### **Set #38**

p. 539 37, 39

### **Partial Fraction Decomposition**

#### **Set #39**

p. 549 1, 3, 5-21 every other odd

**Set #40**

p. 549          7-19 every other odd

**Integrating by Tables and Other techniques****Set #41**

p. 555          1-37 odds

**L'Hopital's Rule****Set #42**

p. 564          5-39 every other odd (0/0 and  $\infty/\infty$ )

**Set #43**

p. 564          7-37 every other odd (0/0 and  $\infty/\infty$ )

**Set #44**

p. 564          43-59 every other odd (other indeterminate forms)

**Set #45**

p. 564          45-57 every other odd (other indeterminate forms)

**Improper Integrals****Set #46**

p. 575          1-15 odds; 17-45 every other odd

**Set #47**

p. 575          19-43 odds

**Sequences****Set #48**

p. 592          1-7 odds; 13-23 odds; 29-45 every other odd

**Set #49**

p. 592          31-43 every other odd

## Series and Convergence - Geometric and Telescoping

### Set #50

p. 601 1-5 odds; 7-19 every other odd; 43-59 every other odd; 25, 29, 33; 43-51 every other odd

### Set #51

p. 601 9-17 every other odd; 21 part a only; 27, 31; 41-53 every other odd

## Integral Test, Harmonic, and p-Series

### Set #52

p. 609 1-21 every other odd;  
29, 31 use p-series test; 33-37 odds

### Set #53

p. 609 3-19 every other odd; 25, 27

## Comparison Tests

### Set #54

p. 616 3-27 every other odd; 39, 41

### Set #55

p. 616 5-29 every other odd

## Alternating Series

### Set #56

p. 625 5-21 every other odd; 37-53 every other odd

p. 625 7-19 every other odd; 39-51 every other odd

### Set #57

p. 625 27-35 odds (approximation using truncated series)

## Ratio and $n^{\text{th}}$ Root Tests

### Set # 58

p. 633 13-33 every other odd (Ratio Test)

**Set # 59**

p. 633 35-47 every other odd ( $n^{\text{th}}$  Root Test)  
p. 633 15-31 every other odd (Ratio Test)

**Set #60**

p. 633 37-49 every other odd ( $n^{\text{th}}$  Root Test)

**Set #61****Taylor Series and Taylor Polynomials**

p. 644 13-29 odds

**Set #62**

p. 673 27-37 odds

**Power Series****Set #63**

p. 654 11-27 every other odd (interval of convergence)  
41, 43

**Set #64**

p. 654 13-29 every other odd

p. 663 5-25 every other odd

**Conics****Set #65**

p. 692 1-45 every other odd

**Set #66**

p. 692 3-47 every other odd

**Parametric Equations****Set #67**

p. 703 1-15 odds

**Set #68**

p. 711 5-17 odds; 29-37 odds; 45, 47, 49

## **Polar Coordinates**

### **Set #69**

p. 722            1-17 every other odd  
                     23-51 every other odd

### **Set #70**

p. 722            3-19 every other odd  
                     25-49 every other odd

## **Polar Coordinates - Area and Arclength**

### **Set #71**

p. 731            1-15 odds

### **Set #72**

p. 731            17-23 odds;  
                     51-55 odds (arclength)

## **COURSE OBJECTIVES**

Upon completion of this course, the student should be able to:

1. Evaluate indefinite integrals.
2. Apply the definite integral to area, volume, arc length, work and average value problems.
3. Apply techniques of integration.
4. Evaluate limits of indeterminate forms.
5. Determine convergence and divergence of infinite series.
6. Differentiate and integrate power series.
7. Find the Taylor's series, MacLaurin's series and power series of given functions.

## **University Firearms Policy**

Regardless and in spite of recent changes in Alabama law related to the matter, it remains the policy of Troy University that no person other than authorized law enforcement officers shall be permitted to bring any firearm onto any campus, teaching, or service support property, owned or leased by the University, regardless of whether or not they hold a permit to do so. It has been determined that it is the University's prerogative to establish its policy related to this issue and therefore the current University policy on firearms remains in effect.

### **Questions on Grading:**

The instructor will entertain questions regarding grading of tests and assignments in his office, during office hours only. No questions regarding grading will be addressed during class.

**This syllabus represents a tentative plan for the instruction in this course. The instructor reserves the right to amend this syllabus if, in his opinion, such action will enhance and/or optimize learning. Any changes in this syllabus will be announced in class and/or on the instructor's website. This syllabus is a best possible assessment of the course aspirations, assignments and requirements at the time it was developed for this semester.**