

MATH 142: Calculus II

Springfield College - Spring 2006 - MWF 10:00-10:50

Instructor: Andrew B. Perry, Ph.D.

Office: Schoo 118

Office Hours:

Mon/Wed/Fri 12:00- 1:00 PM

Thursday 9:30-11:30 AM

Also available by drop-in or appointment

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Course Description : This course provides a thorough introduction to integral calculus as well as differentiation and integration of exponential, logarithmic, and trigonometric functions.

Prerequisites: Calculus I

Textbook: Larson, Hostetler, and Edwards, *Calculus*, Alternate Sixth Edition, Houghton Mifflin, ISBN 0-395-88902-2 - note that this book is currently used in Calculus I, Calculus II and Calculus III, and that the Alternate Fifth Edition is an acceptable substitute.

Grading Procedures: Final grades will be computed as follows:

One Quiz ... 5 % (
Four Tests ... 60 % (each worth 15 %)
Final Exam ... 25 %
Homework ... 10 %
Attendance ... may affect grade - see below

Students will be guaranteed minimum grades according to the following schedule:
95 % = A ; 90 % = A- ; 87 % = B+ ; 83 % = B ; 80 % = B- ; 77 % = C+ ; 73 % = C ; 70 % = C- ; 67 % = D+ ; 63 % = D ; 60 % = D-

Class Web Sites:

We will use the **Manhattan** course management system . At the beginning of the semester please go to www.spfldcol.edu , and follow the links to this class (either current students-manhattan online classwork- etc., or through the link on the my sc web page). Make sure you can log into the virtual classroom, and see the professor or ITS as soon as possible if there are any difficulties.

I also have my own web site **www.professorperry.com** , which has various useful information about myself and this class, as well as useful links.

College Attendance Policy :

In accordance with the Springfield College Student Handbook: "Students who incur legitimate unavoidable absences because of participation in certain official and approved College activities, or because of illness, should be granted an "excused" absence according to the following guidelines.

- Participation in athletic activities away from campus which are approved by the athletic director and on record at the Office of the Dean of Students.
- Participation in other curricular or co-curricular activities approved by a faculty or staff member and the Dean of Students. This also must be on record at the Office of the Dean of Students.
- An illness confirmed by documentation of the Student Health Center, on record at the Dean of Students.
- Personal emergency reported to the Dean of Students within twenty-four hours of return to class.

If a student misses a class meeting for any reason, he or she is still responsible for the material covered. If a student is aware that circumstances will prevent class attendance on a particular day, she or he should contact the faculty member directly in advance of the absence. If the faculty member is not available, the student should contact the appropriate department and leave a message either through voice mail for the faculty member or with the department chairperson or secretary. Students are responsible for explaining their absences to their professors. In case of absences for circumstances other than illness or unforeseen emergency, the student is required to make arrangements for make up of assignments (or exams) with the professor in advance of the absence."

Specific Attendance Policy For This Course: In addition, the course in which you are enrolled is subject to the following attendance guidelines.

- Students must be prompt. Once the lecture has started, students who enter must do so quietly without disrupting the class. Repetitive tardiness for class will be reported to the Dean of Students.
- Tardiness of 10 minutes or more will count as an absence
- Make-up exams will be given only to those students who can provide written documentation that justifies the student's absence at the scheduled time for the exam. If the student is unable to supply written documentation for his/her absence at a scheduled exam, then the student will receive a zero for that exam.

Penalties for excessive absences are as follows.

- The first four (4) physical absences of each individual student will have no direct effect on the calculation of a student's grade. Students are not required to explain or justify these absences. I will assume that you would not miss class without a good reason.
- **Any absence beyond the first four (4) physical absences must be excused with proper documentation, or otherwise a 2 % grade penalty per excess absence will be imposed- regardless of the circumstances surrounding the first four absences.**
- If it is necessary for you to miss more classes than four, makeup work will

be assigned in place of the missed classes.

Perfect or nearly perfect attendance will be considered when final grades are assigned, especially in the case of borderline grades.

Late Submission of Homework Assignments: Students may submit up to three (3) homework assignments late during the semester for full credit, but **only** if these assignments are received by the **beginning of the next class meeting** after the due date. If more than three assignments are submitted (no more than one class period late), they may be subject to a small penalty at the discretion of the instructor, depending on extenuating circumstances.

Any work submitted more than one class period late will receive a grade of ZERO PERCENT (0 %) unless prior arrangements had been made with the instructor in advance of the due date.

Approximate Examination Dates:

Quiz: After the Fundamental Thm. of Calculus; perhaps the 5th day of class

Regular exams: approx. every 3 weeks, covering Ch.5,Ch.6,Ch.7, and Ch.8

Final exam: Monday May 8, 10:15 AM

(Exact examination dates will be announced in class.)

Classroom Format: Lecture, Problem Solving

Course Outcomes:

1. Students will be able to describe and define the definite and indefinite integral.
2. Students will be able to calculate integrals algebraically using traditional methods.
3. Students will be able to calculate integrals directly from the formal limit definition.
4. Students will be able to perform calculations on logarithmic, exponential, and trigonometric functions.
5. Students will be able to calculate area and volume of irregular regions using definite integration.
6. Students will be able to employ sophisticated integration techniques such as integration by parts and integration by partial fractions.
7. Students will be able to apply the techniques of integral calculus to solve application problems.

Assessment of Outcomes: Homework, Exams

Course Outline:

1. Introduction to Integration (approx. 3-4 weeks)
 - (a) Indefinite Integrals
 - (b) Area and Definite Integrals
 - (c) Fundamental Theorem of Calculus
 - (d) Integration by Substitution
2. Applications of Integration (approx. 3 weeks)
 - (a) Area of a region between two curves
 - (b) Volume: The Disc Method
 - (c) Volume: The Shell Method
 - (d) Arc Length
 - (e) Surfaces of Revolution
3. Calculus of Exponential and Logarithmic Functions (approx. 3 weeks)
 - (a) Review of Definitions and Algebra of Exponential and Logarithmic Functions
 - (b) Differentiation of Exponential and Logarithmic Functions
 - (c) Integration of Exponential and Logarithmic Functions
 - (d) Applications to Growth and Decay
4. Calculus of Trigonometric Functions (approx. 3 weeks)
 - (a) Review of Definitions and Algebra of Trigonometric Functions
 - (b) Differentiation of Trigonometric Functions
 - (c) Integration of Trigonometric Functions
 - (d) Inverse Trigonometric Functions
5. Integration Techniques and Improper Integrals (approx. 3 weeks)
 - (a) Integration by Parts
 - (b) Trigonometric Substitution
 - (c) Partial Fractions
 - (d) Improper Integrals

Statement on Academic Honesty : Academic dishonesty of any sort will not be tolerated. Students cheating on exams or engaged in any other improper behavior will be reported to the Dean of Students for appropriate disciplinary action, and at the instructor's discretion, will normally receive a grade of F for the course.

Statement on Classroom Decorum : Students are expected to behave in an adult manner during class time. No eating or drinking is permitted in computer labs. If students must talk to one another during a lecture, it should be very quiet. Students creating a disturbance will be asked to leave class.

Class cancellation due to inclement weather: IF THERE IS INCLEMENT WEATHER ON A DAY THAT AN EXAM HAS BEEN SCHEDULED, THEN THE EXAM WILL BE ADMINISTERED AT THE NEXT CLASS MEETING. Check for class cancellations by calling the school closing information line at 748-5999, or by referring to the SC Cable TV station, or by checking announcements aired on radio stations WHYN, WAQY, WTTT, WNNZ, WHMP, and WMAS or television stations Channel 22 and Channel 40, or WWLP.com. You may possibly also be able to find class cancellation information on our Manhattan web site.

Statement on Special Needs: If you have a documented physical, learning, or psychological disability on record with the Director of Student Support Services (748-3768), you may be eligible for reasonable academic accommodations to help you succeed in this course. It is your responsibility to request such accommodations in advance and to provide appropriate documentation to the Director of Student Support Services. Please let me know of your request as soon as possible, so that I can work with you and the director to arrange for reasonable accommodations.

College Policies on Attendance and Academic Honesty: See the *College Catalog* or the *Student Handbook* for the complete text of these policies.

Homework Assignments

- 5.1 # 1-15 odd,25,27,29,31,35,39,43
- 5.2 # 1,5,9,19,21,37,41
- 5.3 # 1,3,5,13,15,17,21,23
- 5.4 # 1-21 odd,25,27,29,31,39,41,55
- 5.5 # Choose any 12 exercises from among 5-49 odd
- 5.6 # Do trapezoidal rule part of exercises 1,5,11,13
- 6.1 # 1,3,5,11,15,17,19,21,19,33
- 6.2 # 1,5,9,13,19,31,35
- 6.3 # 1,5,21abcd
- 6.4 # 1,3,7,11,23
- 7.1 # 1-15odd,19,23,31,33,35,41
- 7.2 # 3,5,7,13,19,23,25,29,33,43,45,49,55,67
- 7.3 # 3,11,15,17,25,39,49
- 7.4 # 1,3,5,7,11,15,21,25,27,29,31,39,43,47,53,57,61
- 7.5 # 1,3,9,15,17,25,29,39,45,51
- 7.6 # 1,5,15,23,29,37,43
- 7.7 # 1,3,5,15,19,21,31
- 7.8 # 5-21odd,41
- 8.1 # 5,7,13a,17,19,21,23,25,27,31,35
- 8.2 # Choose any 12 from among 1-47odd
- 8.3 # Choose any 10 from among 1-43odd; also do 45,53
- 8.4 # Choose any 10 from among 1-35odd , and 3 from among 37-43odd; also, do 45,47,59
- 8.5 # 5,11,13,15,17,27,35,39,43,47
- 8.6 # 1-11 odd
- 9.2 # Choose any 5 from among 1-23odd
- 9.4 # Choose any 5 from among 1-19odd
- 9.5 # 5,11,15,31,35
- 9.7 # 5-17 odd