



## ***SOUTHWESTERN COLLEGE***

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2625 E. Cactus Road, Phoenix, AZ 85032

Phone: 602-489-5300

### **Calculus II**

#### **Course Information:**

**Course Name – Calculus II**  
**Course Number – MAT 231**  
**Semester Offered - Spring 2010**

#### **Instructor Information:**

**Name - Dr. Warren Pettitt**  
**Office location – Second floor of Doerksen Administration building**  
**Office phone – 602 489 5300 ext 119**  
**email address – [warren.pettitt@swcaz.edu](mailto:warren.pettitt@swcaz.edu)**  
**Office hours – Daily 8:30 to 9:00 and 3:00 to 3:45**

**Course meeting Days – Tuesday and Thursday**  
**Course meeting Time – 4:00-5:15**  
**Course meeting Place – A210**

**Course Description:** Calculus is about the relation between a quantity and its rate of change. For an example, if the quantity is the distance travelled at a given time, then its rate of change is velocity. If the velocity is constant, then calculus is not required: the distance travelled is the product of the elapsed time and the velocity. But when the velocity is not constant, then this formula doesn't apply. Nonetheless, the distance and velocity are intimately related. If the distance travelled at all times is known, then the velocity at any given time can be determined; and if the velocity at all times is known, then the distance travelled at any given time can be determined. These two operations are called *differentiation* and *integration*.

**Prerequisites:** *Grade of C or better in MAT 230*

**Course Student Learning Outcomes:**

Students will be able to :

Effectively write mathematical solutions in a clear and concise manner.

Locate and use information to solve calculus problems.

Demonstrate ability to think critically by recognizing patterns and determining and using appropriate techniques for solving a variety of integration problems.

Demonstrate the ability to think critically by setting up and solving area and volume application problems.

Work effectively with others to complete homework and class assignments. This will be assessed through graded homework assignments and class projects and/or discussions.

Demonstrate the ability to integrate knowledge and ideas of definite and indefinite integrals in a coherent and meaningful manner and use appropriate techniques for solving such problems.

Demonstrate an intuitive and computational understanding for integral applications by solving a variety of problems from physics, engineering and mathematics

Demonstrate the ability to find integrals using various techniques.

### **Texts and Resources:**

Calculus by Larson, Hostetler and Edwards (8<sup>th</sup> edition).

Text website –

[http://college.cengage.com/mathematics/larson/calculus\\_analytic/8e/student\\_home.html](http://college.cengage.com/mathematics/larson/calculus_analytic/8e/student_home.html).

Dr. Pettitt's website – [www.swcit.org/warren](http://www.swcit.org/warren).

### **Course Schedule (including assignments and activities):**

Jan.	12	L'Hopital's Rule
	14	Other Indeterminant forms
Jan.	19	Inverse Functions
	21	Inverse Trig functions
Jan.	26	Hyperbolic functions
	28	Integrals involving powers of sine and cosine
Feb.	2	Integrals involving powers of other trig functions
	4	Partial fractions
Feb.	9	Partial fractions and integration by parts

	11	Integration by parts
Feb.	16	Trig substitution
	18	Trig substitution and Review
Feb.	23	Exam 1
	25	Improper integrals
March	2	Average value of a function and finding volumes
	4	Disks and washers
March	16	Shells
	18	Work and Moments/centers of Mass
March	23	Separable Differential equations
	25	Homogeneous Differential equations
March	30	First-order linear differential equations and Review
April	1	Exam 2
April	6	Sequences
	8	Infinite Series
April	13	Integral test
	15	Comparison tests
April	20	Alternating series
	22	Polynomial approximations
April	27	Taylor and Maclaurin series
	29	Power Series
May	3	Review
	4-7	Final Exam

Homework for each section:

L'Hopital's rule

8:7 5,11,19,25,65,75,87

Inverse Functions

5:1 47,55,63,77,79

5:2 3,15,21,33,49

5:3 3,19,25,31,35,45

5:4 25,33,37,43,51,73

5:5 39,43,51,55,63,69

5:6 7,15,21,33,37,47  
5:7 3,11,23,31,43  
5:8 1,9,15,39,53,59

#### Integration Techniques

8:2 11,19,29,53  
8:3 5,7,33,65,67  
8:1 101  
8:4 23,27,33,49  
8:5 3,9,17,21  
4:6 3,9

#### Improper Integrals

8:8 1,3,5,7,17,27,67

#### Applications of Integration

7:2 3,5,9,13,47  
7:3 3,11,21,27,41  
7:4 1,5,37  
7:5 3,7,9,13  
7:6 3,7,9,15  
5:3 3,19,25,31,45  
8:3 5,7

#### Differential Equations

6:1 3,9,39,49,57  
6:2 3,7,15,23,37  
6:3 3,37,45  
6:4 1,5,9

#### Sequences and Series

9:1 5,9,11,15,19,37,49,55,69  
9:2 1,5,11,15,19,27,35,61,65  
9:3 1,7,25,31  
9:4 1,3,7,15,31  
9:5 7,13,23,33,41  
9:6 1,5,13,25,35,39,55  
9:7 3,5,9,15,27,45  
9:8 1,3,7,9,11,17,41,45  
9:10 3

#### Parametric Equations

### Assessment and Grading:

Assignments and their weight –

**Tests – 150 points**

**Final – 200 points**

**Quizzes – 15 points each**

**Homework – 75 points for each test**

**Absence** – Absence from 5 or more lectures is sufficient reason for the instructor to drop the student from the course with a failing grade.

**Late Work** – Work will not be accepted after the due date. Please communicate with me as soon as possible if circumstances arise that necessitate extensions be granted.

**Letter Grades:**

A – 90% to 100%

B – 80% to 89.5%

C – 70% to 79.5%

D – 60% to 69.5%

F - < 60%

**Expectations for Students:**

A. Attendance

- Students are responsible to arrive for lectures at the scheduled time. Tardiness is an interruption to instruction.
- It is the student's responsibility to obtain pertinent information from other students or the instructor in the event of tardiness or absence.
- In anticipation of absence from a scheduled quiz, test, or lab it is the student's responsibility to make arrangements in advance to take a quiz, test or perform a lab exercise at an alternate time that is mutually convenient and agreeable. Missed assignments will be averaged in as a zero on the course grade unless prior arrangements have been made. There is no makeup for these. Excused missed tests must be made up within 1 week of the scheduled time they were taken. Arrangements to make up the test must be made as soon as the student returns to class.
- There is no late work, if you have an emergency concerning any assignment please contact me as soon as possible.

B. Reading

1. Most benefit will be derived from the course if the assigned reading is done prior to arrival at the lectures. You will find scanning the text to be insufficient in your preparation.
2. The instructor may assign additional reading.

C. Cell Phones and other electronic devices should not be on during class.

**Accommodation and Special Needs - Include the following statement:** Your instructor is willing to make any reasonable adaptations for limitations due to any disability, including a learning disability, in keeping with SWC policies and the Student Handbook. Any student with documented certifiable special needs should contact the office of the Dean of Student Services on campus and they will inform me of the proper accommodations you require. If you have a special need, including a learning disability, it is your responsibility to contact this office as soon as possible to discuss your accommodation needs.

**Retention of Examinations and Assignments:** Instructors will retain copies of student examinations and assignments not returned to students for one semester in case of dispute between a faculty member and a student in assigning or recording a grade. After that time, instructors may discard course materials in a manner that preserves student confidentiality.

**E-mail Policy – Include the following statement:** Students are issued an official Southwestern College student email address when they are admitted to the College. These addresses all have the same form: [firstname.lastname@swcaz.edu](mailto:firstname.lastname@swcaz.edu). This is the only electronic mailing address recognized by the college. Students are responsible for all official college communications, including attachments, transmitted to this address. SWC faculty and staff are not responsible for forwarding email to personal email accounts that are not assigned by the college. Students are required to check their SWC email on a daily basis.

**Withdrawal:**

**Last day for withdrawal without instructor signature – January 29<sup>th</sup> 2010**

**Last day for withdrawal with instructor signature – March 19<sup>th</sup>, 2010**

**Disclaimer note** - Include: *This syllabus is subject to modification. The instructor will communicate with students any changes.*