

**WALTERS STATE COMMUNITY COLLEGE  
COURSE SYLLABUS**

**COURSE NAME AND NUMBER:** Calculus II - MATH 1920

**SEMESTER AND YEAR:**

**INSTRUCTOR:**

Mathematics Division Fax: 423-585-6873

Division Secretary: 423-585-6864

**Tutoring:** Mrs. Beth Dixon at [Beth.Dixon@ws.edu](mailto:Beth.Dixon@ws.edu) ; 423-585-6872, MBSS 222

Ms. Mary Breedlove at [Mary.Breedlove@ws.edu](mailto:Mary.Breedlove@ws.edu) ; 423-585-6920, CCEN 261

**Office Hours:**

**REQUIRED TEXTBOOK:** Calculus Single and Multivariable 4<sup>th</sup> Edition Hughes-Hallett, Wiley

**REQURIED TECHNOLOGY:** A TI-89, TI-89 Titanium, Voyage 200, TI-92 Plus, or TI-92 calculator is required. Ask about WSCC calculator loaner program for Calculus II.

**Students may need a ream of computer paper to print materials from eLearn.**

**CATALOG COURSE DESCRIPTION:**

A standard second-semester course in single variable calculus and analytic geometry. Further work with differential and integral calculus with applications including integration by parts, trigonometric substitution, infinite series, power series, and polar coordinates. (Prerequisite: MATH 1910)

4 semester credits

**COURSE OUTCOMES:**

The student should be able to:

1. Find antiderivatives of functions including methods involving u-substitution, completing the squares, partial fractions, trigonometric substitution, and tables of integrals.
2. Use the Fundamental Theorem of Calculus to evaluate definite integrals.
3. Approximate definite integrals using the numerical methods (right-hand rectangles, left-hand rectangles, midpoint rectangles, trapezoid rule, and Simpson's rule) and examine bounds on the error.
4. Find area using polar coordinates.
5. Use integrals to solve applied problems including areas, volumes of solids of revolution, and arc length.
6. Evaluate improper integrals.
7. Test for absolute and conditional convergence of infinite series including geometric series, the Integral Test, the Comparison Test, the Limit Comparison Test, and the Ratio Test
8. Express functions as power series and find the radius of convergence.
9. Use calculator and/or computer software appropriately when working calculus problems.

## **COURSE CONTENT:**

### Chapter 6 – CONSTRUCTING ANTIDERIVATIVES

#### 6.1 Constructing Antiderivatives Analytically

### Chapter 7 - INTEGRATION

- 7.1 Integration by Substitution
- 7.2 Integration by Parts
- 7.3 Tables of Integrals
- 7.4 Algebraic Identities and trigonometric Substitutions
- 7.5 Approximating Definite Integrals
- 7.6 Approximating Errors and Simpson's Rule
- 7.7 Improper Integrals
- 7.8 Comparison of Improper Integrals

### Chapter 8 – USING THE DEFINITE INTEGRAL

- 8.1 Areas and Volumes
- 8.2 Application to Geometry
- 8.3 Area and Arc Length in Polar Coordinates
- 8.5 Applications to Physics
- 4.8 Parametric Equations

### Chapter 9 – SEQUENCES AND SERIES

- 9.1 Sequences
- 9.2 Geometric Series
- 9.3 Convergence of Series
- 9.4 Tests for Convergence
- 9.5 Power Series and Interval of Convergence

### Chapter 10 – APPROXIMATING FUNCTIONS USING SERIES

- 10.1 Taylor Polynomials
- 10.2 Taylor Series
- 10.5 Fourier Series

## **INSTRUCTIONAL AND EVALUATION METHOD:**

### **GATEWAY TEST:**

Students must score 80% or better on a form of the derivatives proficiency test in order to pass Calculus I. The proficiency test may be taken more than once. If a student does not achieve a score of 80% on a form of the proficiency test, the student will not pass Calculus II, regardless of passing grades on other course material.

### **FINAL EXAM: (comprehensive)**

### **COURSE GROUND RULES:**

All students attending Walters State Community College, regardless of the time and location of the class, must abide by the rules and regulations outlined in the current *Walters State Catalog/Student Handbook* and the current *Walters State Timetable of Classes*. A copy of the Catalog /Handbook and the Timetable of Classes may be obtained from the admissions office on the main campus or at any of our off-campus sites.

You may also access the Catalog/Handbook on-line at the following web address:

<http://www.ws.edu/catalog>.

Students should attend the first day of class or contact the instructor prior to the first class. Failure to do this may result in being dropped from the class.

Plagiarism, cheating, and other forms of academic dishonesty are prohibited.

Students with disabilities must register with the Department of Services for Individuals with Disabilities in College Center (CCEN), Room 210 (phone 423-585-6892) if they need any special facilities, services, or consideration.

Students in need of tutoring assistance are encouraged to contact the Office of Tutoring located in the College Center (CCEN), Room 221A. The phone number is 423-585-6920.

Students receiving any type of financial aid or scholarship should contact the Financial Aid Office before making any changes to their schedule. Schedule changes without prior approval may result in loss of award for the current term and future terms.

Students who have not paid fees on time and/or are not correctly registered for this class and whose names do not appear on official class rolls generated by the Admissions and Records Office will not be allowed to remain in class or receive credit for this course.

Cellular phone use during classroom interaction is prohibited. Cellular phones must be turned to the nonaudible mode until after class, at which time calls can be received or checked. (See *the Walters State Catalog/Handbook*)

Regular class attendance is a student's obligation. (See *the Walters State Catalog/Student Handbook*) If for some reason a student misses class, it is his or her responsibility to see the instructor regarding missed assignments and/or activities and to be prepared for the next class. Excessive absences may substantially lower the semester grade. The college requires the instructor to keep accurate records and to report when students are not attending class.

**ALTERNATE TEACHING PLAN:**

Email instructor for additional information

**DROP DEADLINE:**

**ACCESS FULL SYLLABUS:** <http://elearn.ws.edu>

**COURSE WEB RESOURCES:** [online.ws.edu](http://online.ws.edu)