

Course Number: MT 360B

Course Title: Calculus II

Course Description:

Continues treatment of single variable calculus including definite and indefinite integrals, applications of integrals, transcendental functions, techniques of integration and infinite series.

Prerequisite Courses:

MT 360A, Calculus I

Course Outcomes:

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

- Demonstrate that the student is able to communicate mathematical concepts so that they may provide the public with information and expert judgment as part of the basis for social and political decisions.
- Demonstrate an awareness of the socially beneficial uses of mathematics, as well as harmful uses of mathematics.
- Calculate the area under a curve and volume of a solid by various methods.
- Set up integrals to evaluate arc length and arc surface area.
- Evaluate definite and indefinite integrals using a variety of tools.
- Evaluate limits of indeterminate forms using L’hopital’s rule.
- Manipulate sequences and series according to mathematical rules.
- Evaluate Maclaurin and Taylor polynomials and apply them.
- Manipulate and graph polar equations.
- Determine the solution of a first order separable differential equation.

Course Materials:

Required Texts:

- Hess, Joel, Weir, Maurice D., & Thomas, George B. Jr. (2016) *University Calculus, Early Transcendentals*. 3rd Edition, Boston, MA: Pearson Education, Inc. ISBN: **0321999746**.

Required Resources:

- TI-8x or equivalent graphing calculator.

Course Assignments and Activities:

Week	Learning Topics	Activities	Reading Assignments	Assignments
1	Integration and Integrals <ul style="list-style-type: none"> Indefinite Integrals Substitution Rule for Indefinite Integrals Substitution and Area Between Curves 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 5 Sections 5.5-6	First week assignment MyMathLab exercises Week 1 Quiz Discussion Forum
2	Applications of Definite Integrals <ul style="list-style-type: none"> Volumes by Slicing and Axis Rotation Volumes of Solids of Revolution / Method of Cylinders Lengths of Plane Curves Areas of Surfaces of Revolution Work 	Discussion Forum: Topics 1 - 3 Lab Exercises (MyMathLab)	Chapter 6, Sections 1-6	MyMathLab exercises Week 2 Quiz Discussion Forum
3	More Applications of Definite Integrals <ul style="list-style-type: none"> Logarithm Defined as in Integral Separable Differential Equations Exponential Growth Hyperbolic Functions 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 7 Sections 1-3	MyMathLab exercises Week 3 Quiz Discussion Forum
4	Techniques of Integration – Part A <ul style="list-style-type: none"> Integration by Parts Trigonometric Integrals Trigonometric Substitutions Integration of by Partial Fractions 	Discussion Forum: Topics 1 - 3 Lab Exercises (MyMathLab)	Chapter 8, Sections 1-4	MyMathLab exercises Midterm Exam Discussion Forum

Week	Learning Topics	Activities	Reading Assignments	Assignments
5	Techniques of Integration - Part B <ul style="list-style-type: none"> • Integral Tables • Numerical Integration • Improper Integrals • Comparison Test for Improper Integrals 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 8, Sections 5-7	MyMathLab exercises Week 5 Quiz Discussion Forum
6	Infinite Sequences and Series – Part A <ul style="list-style-type: none"> • Sequences • Infinite Series • The Integral Test • Comparison Tests • The Ratio and Root Tests • Alternating Series, Absolute and Conditional Convergence 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 9, Sections 1-6	MyMathLab exercises Week 6 Quiz Discussion Forum
7	Infinite Sequences and Series – Part B <ul style="list-style-type: none"> • Power Series • Taylor Series • Maclaurin Series • Convergence of Taylor Series • Binomial Series 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 9, Sections 7-10	MyMathLab exercises Week 7 Quiz Discussion Forum
8	Polar Coordinates and Conics <ul style="list-style-type: none"> • Polar Coordinates • Graphing in Polar Coordinates • Areas and Lengths in Polar Coordinates • Conic Sections • Polar Coordinates and Conics • Conics and Parametric Equations - The Cycloid 	Discussion Forum: Topics 1 - 4 Lab Exercises (MyMathLab)	Chapter 10, Sections 1-6	MyMathLab exercises Final Exam Discussion Forum

Student Evaluation Grid:

Assignments	Weighted Percentage
Weekly Assignments	15%
Weekly Quizzes	25%
Midterm Exam	20%
Final Exam	30%
Participation	10%
TOTAL	100 %

Participation

Because of the accelerated nature of the course, class participation is very important. Class participation/effort is important because we can all learn from each other. Your participation points can make a difference in the final grade. If the student does not participate during any given week, they will lose the participation points for that week.

Participation means:

1. Present in class every session (classroom)/Present in the forum every week (on-line)
2. Effectively respond to questions from the facilitator (classroom)/Regularly check forum and post all required assignments/discussion questions/items by the deadlines (on-line)
3. Contributes to classroom/forum discussions.

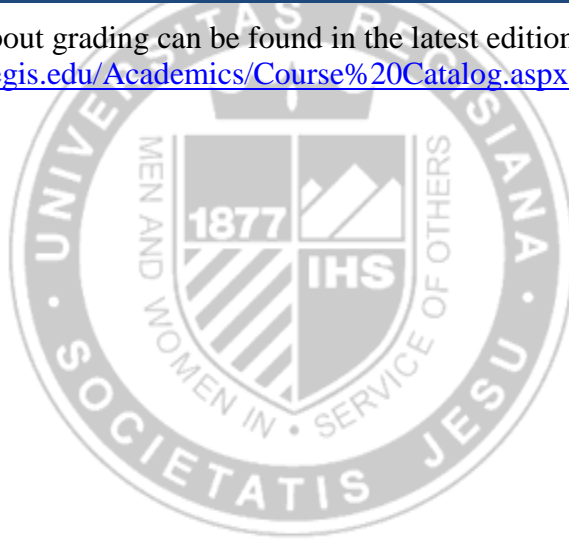
Tutoring Information:

Occasionally students need additional assistance with course content. Tutorial assistance is available to students through SmartThinking, writing assistance and personal tutoring. SmartThinking provides every student with ten hours of free online tutoring in writing, math, statistics, economics and accounting each year. Writing assistance is available in the form of Roving Writing Tutors and a variety of writing workshops. Individual personal tutors are available in a variety of discipline areas with fees and arrangements made between the individual student and tutor. For access to these services, go www.regis.edu, Current Student, Services for CPS Students, Academic Tools, Tutoring/SmartThinking.

CC&IS Grading Scale

Letter Grade	Percentage	Grade Point
A	93 to 100	4.00
A-	90 to less than 93	3.67
B+	87 to less than 90	3.33
B	83 to less than 87	3.00
B-	80 to less than 83	2.67
C+	77 to less than 80	2.33
C	73 to less than 77	2.00
C-	70 to less than 73	1.67
D+	67 to less than 70	1.33
D	63 to less than 67	1.00
D-	60 to less than 63	.67
F	Less than 60	0

Additional information about grading can be found in the latest edition of the University Catalog, available at <http://www.regis.edu/Academics/Course%20Catalog.aspx>.



CC&IS Policies and Procedures

Each of the following CC&IS Policies & Procedures is incorporated here by reference. Students are expected to review this information each term, and agree to the policies and procedures as identified here and specified in the latest edition of the University Catalog, available at <http://www.regis.edu/Academics/Course%20Catalog.aspx> or at the link provided.

- The CC&IS Academic Integrity Policy.
- The Student Honor Code and Student Standards of Conduct.
- Incomplete Grade Policy, Pass / No Pass Grades, Grade Reports.
- The Information Privacy policy and FERPA. For more information regarding FERPA, visit the [U.S. Department of Education](http://www.ed.gov).
- The HIPAA policies for protected health information. The complete Regis University HIPAA Privacy & Security policy can be found here: <http://www.regis.edu/About-Regis-University/University-Offices-and-Services/Auxiliary-Business/HIPAA.aspx>.
- The Human Subjects Institutional Review Board (IRB) procedures. More information about the IRB and its processes can be found here: <http://regis.edu/Academics/Academic-Grants/Proposals/Regis-Information/IRB.aspx>.

The CC&IS Policies & Procedures Syllabus Addendum summarizes additional important policies including, Diversity, Equal Access, Disability Services, and Attendance & Participation that apply to every course offered by the College of Computer & Information Sciences at Regis University. A copy of the CC&IS Policies & Procedures Syllabus Addendum can be found here: <https://in2.regis.edu/sites/ccis/policies/Repository/CCIS%20Syllabus%20Addendum.docx>.