



North Central State College
MASTER SYLLABUS
2019-2020

- A. Academic Division: Liberal Arts
- B. Discipline: Mathematics
- C. Course Number and Title: MATH1151 Calculus II
- D. Course Coordinator: Sara Rollo
Assistant Dean: Dr. Steve Haynes

Instructor Information:

- Name: [Click here to enter text.](#)
- Office Location: [Click here to enter text.](#)
- Office Hours: [Click here to enter text.](#)
- Phone Number: [Click here to enter text.](#)
- E-Mail Address [Click here to enter text.](#)

- E. Credit Hours: 5
- F. Prerequisites: MATH1150 (Minimum grade of C- required)
- G. Syllabus Effective Date: Fall, 2019
- H. Textbook(s) Title:

On Campus Classes:

Calculus (packaged w/Web Assign)

- Author: Ron Larson/Bruce Edwards
- Copyright Year: 2018
- Edition: 11TH
- ISBN # 9781337604741

Off Campus Classes (at High Schools):

Calculus (packaged w/Web Assign)

- Author: Ron Larson/Bruce Edwards
- Copyright Year: 2014
- Edition: 10TH
- ISBN # 9781305718661

- I. Workbook(s) and/or Lab Manual: Supplies: TI-83 or TI-84 required
- J. Course Description: This course is a continuation of MATH1150 Calculus I. Topics include integration and applications, calculus of exponential and logarithmic functions, hyperbolic functions, methods of integration, integration by parts, indeterminate forms and L'Hôpital's Rule, moments and centers of mass, fluid pressure and force, integration techniques, series including Taylor and Maclaurin, calculus of conics, calculus of parametric equations, and polar forms of conic sections including Kepler's Laws. This course meets the requirements for OTM Calculus II TMM006. If combined with MATH1150, it meets the requirements for OTM Calculus I & II sequence TMM017.

K. College-Wide Learning Outcomes:

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Employ a variety of integration techniques to evaluate special types of integrals and apply to physical, biological or economic situations.	Homework, Tests, Final Exam Weeks 1,2,3,6,7,8,9,10 and 12
2. Approximate a definite integral by the Trapezoidal Rule.	Homework, Tests, Final Exam Weeks 1,4 and 16
3. Evaluate limits that result in indeterminate forms, including the application of L'Hôpital's Rule.	Homework, Tests, Final Exam Weeks 9,10,12 and 16
4. Evaluate improper integrals.	Homework, Tests, Final Exam Weeks 10,12 and 16
5. Find, graph, and apply the equations of conics.	Homework, Tests, Final Exam Weeks 14 and 16
6. Determine the existence of, estimate numerically and graphically, and find algebraically the limits of sequences and determine whether a series converges.	Homework, Tests, Final Exam Weeks 11,12,13 and 16
7. Find the nth Taylor polynomial at a specified center for a function and estimate the error term.	Homework, Tests, Final Exam Weeks 13 and 16
8. Analyze curves given parametrically and in polar form and find the areas of regions defined by such curves.	Homework, Tests, Final Exam Weeks 15 and 16
9. Solve separable differential equations and understand the relationship between slope fields and solution curves.	Homework, Tests, Final Exam Weeks 4,5,8 and 16

M. Topical Timeline (Subject to Change):

Weeks 1-2	Riemann sums and definite integrals Finding integrals by numerical integration –trapezoidal rule Differentiating natural logarithmic functions Integrating natural logarithmic functions Solving problems involving inverse functions Differentiating and integrate exponential functions Differentiating and integrating when there are bases other than e
Week 4	Differential equations involving growth and decay
Weeks 2-3	Differentiating inverse trigonometric functions Integrating inverse trigonometric functions Problems involving hyperbolic functions

Weeks 6-8	The area of a region between two curves Volumes using the disc method Volumes using the shell and ring methods Arc length and surfaces of revolutions of a function Problems involving work Problems involving fluid pressure and fluid force Moments, centers of mass, and centroid
Weeks 4-5	Interpreting and using slope fields in mathematical situations Solving differential equations by using separation of variables Solving first-order differential equations
Weeks 9-10	Basic integration rules Integration by parts Integrating trigonometric functions Integrating using trigonometric substitution Integrating using partial fractions Integrating by using tables and by other integration techniques Indeterminate forms and L'Hôpital's Rule Integrating improper integrals
Weeks 11-14	Sequences Determining the convergence of a series Using the integral test and p-series to determine convergence Comparing series to find convergence Determining convergence for alternating series Determining convergence by the ratio and root tests Taylor polynomials and approximations Representing functions by power series Convergence of Taylor and Maclaurin series
Weeks 14-16	Graphing conics Graphing conic sections that have a rotation of axes Graphing plane curves that are expressed as parametric equations Parametric equations and calculus Polar coordinates and polar functions and equations Area and the arc length of problems in polar form Polar forms of conic sections and use Kepler's Laws

N. Course Assignments:

1. Review of Chapter 4 [M. 1-2]
2. Chapter 5 [M. 3-7, 9-11]
3. Test 1
4. Chapter 6 [M. 8, 19-21]
5. Chapter 7 [M. 12-18]
6. Test 2
7. Chapter 8 [M. 22-29]
8. Test 3
9. Chapter 9 [M. 30-38]
10. Test 4
11. Chapter 10 [M. 39-45]
12. Comprehensive Final Exam

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93-100	A	4.00	Superior
90-92	A-	3.67	Superior
87-89	B+	3.33	Above Average
83-86	B	3.00	Above Average
80-82	B-	2.67	Above Average

77-79	C+	2.33	Average
73-76	C	2.00	Average
70-72	C-	1.67	Below Average
67-69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

Hmwrk/Quiz 15%; EWA 10%; Tests 50%; Final 25%

Q. Examination Policy:

Click here to enter text.

R. Class Attendance and Homework Make-Up Policy:

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S. Classroom Expectations:

Click here to enter text.

T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](#) located at <https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf>

The information can also be found Choose an item.