



Math and Sciences | Spring 2024

Chair: Derek Vander Molen, 701-774-4237

## MATH 166-21370 & 19909: CALCULUS II

### COURSE SYLLABUS

#### COURSE INFORMATION

MATH 166: Calculus, 4 credits, 11:00a MTWR

Course Description: Pre-requisite: "C" or higher in MATH 165

Applications and techniques of integration, polar equations, parametric equations, sequences and series, power series, and applications.

#### INSTRUCTOR

Amanda K.F. Davis, Stevens Hall SC200, 701-774-4504, [Amanda.k.davis@willistonstate.edu](mailto:Amanda.k.davis@willistonstate.edu)

Cell: **850-902-1427**

Math Lab Hours/Office Hours: M 12p-6p T 12p-6p W 12p-6p R 12p-6p F 12p-6p

#### TEXTBOOK & MATERIALS

- [University of North Dakota FREE ONLINE Textbook \(FALL 2023 TEXTS\)](#)
- Graphing Calculator (recommended TI-83, TI-84 PLUS, etc.)
  - \*NOTE\*: These are available for checkout in the Learning Commons
- Notebook for calculus only; write with PENCIL ONLY. Erasable ink is okay.

## STUDENT LEARNING OUTCOMES

### INSTITUTIONAL OUTCOMES

- I. Institutional Outcome: #2. Students will use reasoning skills to analyze and solve problems.

### PROGRAM OUTCOMES

- I. Institutional Outcome: #2. Students will use reasoning skills to analyze and solve problems.

### COURSE OUTCOMES

1. Create models and determine outcomes to represent real life situations.
2. Perform integration on diverse functions.
3. Use correct calculus procedures to solve problems.
4. See the following webpage for further discussion: [Student Learning Outcomes](#)

### ASSESSMENT TASKS (FOR COURSE OUTCOMES)

The general education outcomes and course objectives will be assessed by using: 4 Bookworks, 5 Test Reviews, 4 Tests, TWO (½) Take Home Tests, an ePortfolio Project, and a Final.

- Participate in classroom activities demonstrating knowledge of key calculus concepts.
- Practice key calculus concepts and techniques by completing assigned bookwork problems.
- Complete objective tests demonstrating mastery of concepts and process skills.
- Summarize understanding by completing essay questions about mastery of concepts.
- Bookwork will be assigned over every section covered in lecture and **MUST BE ATTEMPTED PRIOR TO THE NEXT CLASS MEETING**. The students may ask for clarification of any bookwork problems, or test review problems during MATH LAB HOURS, by text message or by appointment.
- We will have 4 BOOKWORKS, 4 TEST REVIEWS, 4 TESTS, TWO (½) Take Home Tests, an ePORTFOLIO PROJECT and a FINAL. Test problems will be similar to those assigned for bookwork/review, and therefore, it will be difficult to achieve a passing grade without completing the bookwork and reviews.
- \*\*In grading, I am as interested in your work as in your answers, so show as much work as reasonable, and do not just give the answers.\*\*

## PROCESS SKILLS

- Study Inverse Functions
- Exponents & Logarithms
- Apply various integration methods to complex integrals
- Determine whether sequences and series converge or diverge
- Find the radius and interval of convergence of a power series
- Represent functions by powers series
- Determine the Taylor or Maclaurin series of a function
- Graph in polar coordinates and using parametric equations
- Determine rates of change, area, and arc length in polar coordinates
- Use integration to find the arc length or surface of revolution of a solid

## CONCEPTS & ISSUES

- Inverse Functions
- Derivatives of Inverses
- Exponential Functions
- Logarithmic Functions
- Hyperbolic Functions
- L'Hopital's Rule
- Integration by Parts
- Trigonometric Integrals
- Trigonometric Substitution
- Partial Fractions
- Integration Strategies
- Indeterminate Forms
- Improper Integrals
- Numerical Integration
- Sequences
- Series and Convergence
- Integral Tests
- $\rho$  – Series
- Alternating series
- Ratio and Root Tests
- Power Series
- Taylor Polynomials
- Maclaurin Series
- Conics
- Plane Curves
- Parametric Equations
- Polar Coordinates
- Polar Graphs

## ASSESSMENT PORTFOLIO

Each degree seeking student is required to maintain an assessment portfolio on Blackboard for his/her time at Williston State College. For this class you should include evidence of completing learning outcomes (ePortfolio Project for 20 points) of what you learned in this class.

## GRADING POLICY

<b>Assignments</b>	<b>Points</b>	<b>Grade Scale</b>
4 Bookworks (40 points each)	160	
4 Reviews (20 points each)	100	895+ A
4 Tests (300 points each)	300	795-894 B
2 (½) Tests (200 points each)	200	695-794 C
Class Participation	20	595-694 D
ePortfolio (project)	20	0-594 F
Final Exam	200	
<b>Total Points Available</b>	<b>1000</b>	

## ACCESSIBILITY STATEMENT

Williston State College is committed to providing equal access to students. If you have a disability which may impact your performance, attendance, or grades in this course that requires accommodations, you must first register with Accessibility Support Services. Please note that classroom accommodations cannot be provided until your instructors receive an Accommodations Form, signed by you and the Accessibility Support Services Coordinator.

## IMPORTANT DATES

- Last day to drop: January 17, 2024
- Last day to withdraw: April 5, 2024
- For important dates concerning holidays, last date to withdraw from class, etc., please visit the WSC catalog available on the website: [www.willistonstate.edu](http://www.willistonstate.edu)

## ACADEMIC RESOURCES

Take advantage of academic resources available to you at Williston State College:

- Communication Lab: Supplemental instruction is provided to assist students who are either having difficulty or desiring extra help with specific subjects. The Communication Lab assists with composition, writing, communication, and public speaking. The Communication Lab is located in Stevens Hall 120. Students should make appointments at [wsc.writinglab@willistonstate.edu](mailto:wsc.writinglab@willistonstate.edu). You can also call the Comm. Lab 701-774-4511.
- Math Lab: Supplemental instruction is provided to assist students who are either having difficulty or desiring extra help with specific subjects. The Math Lab assists with all math needs. The Math Lab is located in Stevens Hall Science Lounge.
- Learning Commons: It's not just the Library anymore. In addition to the normal library functions (book checkout, research assistance, etc.), the Learning Commons serves a number of other functions. In the Learning Common you can check out study rooms, check out graphing calculators, utilize computers and print school related materials. Technical support for your online courses is also available in the Learning Commons. For technical support please stop in the Learning Commons or call 701.774.4590 or email [wsc.extendedlearning@willistonstate.edu](mailto:wsc.extendedlearning@willistonstate.edu)  
For library support or questions call 701.774.4226.
- NetTutor: Web based service that provides on demand tutoring across a wide variety of subject areas. With NetTutor you can access live tutors, ask a question, and come back later for a response and/or submit written work for review. This program can be accessed through the NetTutor link in any WSC Blackboard course. If you have questions or need assistance, please contact Extended Learning at [wsc.extendedlearning@willistonstate.edu](mailto:wsc.extendedlearning@willistonstate.edu).

## **STUDENT ACADEMIC INTEGRITY**

Work submitted for this course must follow Student Academic Integrity as cited in the WSC Student Code of Conduct, p. 14:

Acts of cheating and plagiarism are prohibited. Cases of academic dishonesty may be treated as an academic matter or as a disciplinary matter at the discretion of the instructor.

Cheating is defined as fraud, deceit, or dishonesty in an academic assignment. It includes using or attempting to use materials or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Plagiarism is presenting someone else's work or ideas as your own, with or without their consent, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition.

Self-plagiarism is the use of one's own previous work in another context without citing that it was used previously.

The instructor may reflect on the incident of academic dishonesty through the assignment of the student's grade in the course. If the student has a grievance related to this action, that grievance would be directed to the Chair of the department in which the course is housed.

Alternatively, the instructor may refer the case as a disciplinary matter to the Vice President for Academic Affairs. The Vice President for Academic Affairs may refer the case to the Student Review Committee for action.

Breach of academic integrity may result in failure of the assignment, exam, and/or class.

### **STUDENT RESPONSIBILITIES:**

- You are expected to read the relevant materials and participate in class discussions in a timely manner.
- You are expected to respect your fellow students and the Instructor in online and on campus discussions.
- It is your responsibility to ask questions when you are uncertain about assignments or course materials.
- If you have questions concerning grades, you should contact the Instructor immediately. You are responsible for checking Blackboard in a timely fashion to ensure that the grade recorded is your correct grade.
- It is your responsibility to contact the Instructor as soon as possible if you are encountering any issues that would hinder your performance in this class.
- You are responsible for earning your grade (with the Instructor making every effort to help you learn the material).
- If you are concerned about your grade, you should speak to the Instructor **NO LATER** than mid-term. No consideration will be given to request to adjust your grade at the end of the semester unless there is an error in calculations.

## GRIEVANCE POLICY

Occasionally, students are dissatisfied with some dimension of the course. In such cases, students should first schedule a meeting with the instructor. If the student and instructor cannot reach a satisfactory resolution, the student should schedule a meeting with the Chair of the Department. (See page 10 of the Student Code of Conduct.)

## TITLE IX

Survivors of sexual assault, domestic violence, and sexual harassment: please be aware that as an instructor, I am legally obligated to report all instances of sexual assault, domestic violence, and sexual harassment involving students. If you would like to speak to someone confidentially, please contact the WSC Counselor at (701)774-4212 (they are NOT mandated to report such instances).

## FINAL EXAMS/ACTIVITIES

Students are required to take the final examination or engage in the final activity on the date and at the time presented as part of the course syllabus. Exceptions may be made only in emergency situations and in the case of scheduling conflicts with college sponsored events by promptly submitting a written request detailing the circumstances to the instructor of the course. Your meeting time for your final is:

May 6, 2024, 2pm-4pm

## SCOPE AND SEQUENCE OF THE COURSE (SUBJECT TO CHANGE)

Day/Week	Course Calendar/Instruction
<b>Week 1</b>	Syllabus
	7.1 # 1-9, 12, 14, 15, 16, 17, 18, 19-33, 35, 36
<b>Week 2</b>	7.2 # 1-3, 5, 6, 7, 9, 10, 12, 16, 18, 20-28, 30, 31
	7.3 # 1-10, 12, 13-25, 27-33
<b>Week 3</b>	7.4 # 1-9, 12, 14, 16-20, 24-29, 31-40
	ePortfolio Project
<b>Week 4</b>	7.5 # 1-13, 16, 17, 19-23, 27, 33-36, 40-44, 47, 49, 55
	REVIEW
	<b>TEST 1 (7.1-7.5)</b> <b>GRADE (T1):</b> _____
<b>Week 5</b>	<b>TAKE HOME TEST 2: DUE February 22, 2024</b>
	8.1 # 1-4, 6, 9, 10, 13-17, 19, 22, 23, 25, 28, 30, 31, 33, 35, 37, 38, 41-44, 54
	8.2 # 1-6, 8, 11, 13, 14, 15, 17, 19, 21, 22, 27, 31, 34, 35, 37, 38, 40

Day/Week	Course Calendar/Instruction
Week 6	8.3 # 1-6, 8, 10, 12, 14, 15, 16, 18, 20, 21, 22, 24, 26
	8.4 # 1-8, 11, 14, 15, 19, 22, 26, 27, 31, 34, 36
	8.5 # 1-6, 13, 15, 16, 19, 20, 24, 26, 31, 34, 35, 38, 44
Week 7	8.6 # 1-8, 10, 12, 16, 18, 21, 22, 25, 28, 30, 31, 32, 34, 39, 43, 46
	8.7 # 1-8, 12, 15, 17, 18, 19, 21, 24, 25
	<b>TAKE HOME TEST 2 (8.1-8.6 mostly 8.5*): DUE Feb 22, 2024 GRADE (THT2): _____</b>
Week 8	REVIEW
	<b>TEST 2 (8.1-8.7) GRADE (T2): _____</b>
	9.1 # 1-6, 8, 9, 10, 14, 15, 18, 20, 24, 25, 26, 31, 35, 38, 40-42, 44-46
Week 9	9.2 # 1-12, 15, 16, 18, 19, 20, 24, 26, 27, 30, 33, 34, 35, 38, 40, 42, 44
	9.3 # 1-12 all
	9.4 # 1-5, 12, 16, 17, 19, 20, 21, 23, 24, 25, 28, 30, 32
Week 10	9.5 # 1-5, 7, 8, 9, 10, 13, 15, 16, 18, 21, 23, 25
	9.6 # 1-6, 8, 9, 10, 13, 15, 16, 17, 18, 19, 21, 22, 23, 24
	9.7 # 1-4, 7, 8, 9, 11, 13, 14, 17, 18, 21, 25, 33, 35, 37
Week 11	REVIEW
	<b>TEST 3 (9.1-9.6) GRADE (T3): _____</b>
	9.8 # 1-9, 11, 12, 13, 14, 19, 21, 22, 24, 27, 28, 29, 30, 32, 34, 36
	<b>TAKE HOME TEST 3 (9.7-9.9): DUE April 4, 2024</b>
Week 12	9.9 # 1-6, 7, 10, 13, 14, 15, 16, 18, 20, 24, 25, 30, 32, 33, 35
	9.10 # 1-6, 7, 10, 13, 17-20, 21, 25, 27, 31, 32
	10.0 # 1-26
Week 13	<b>TAKE HOME TEST 3 (9.7-9.9): DUE Apr 4, 2024 GRADE (THT3): _____</b>
	10.1 # 1-13, 17, 18, 21, 22, 24, 25, 26, 29, 30, 31, 32
	10.2 # 1-8, *9-17*USE YOUR CALCULATOR TO SEE THE GRAPHS, 19, 20, 21, 23, 24, 25, 27, 29, 30, 31, 33, 35, 36, 42, 43, 44, 46, 47, 50, 52, 53, 56, 57, 59, 61, 63

Day/Week	Course Calendar/Instruction
<b>Week 14</b>	10.3 # 1-9*, 11, 13-17*, 19, 21, 22, 25-29*, 31, 33-39*odds, 41, 42, 44,45,46, 48 <b>NOTE: 5,13,25 ARE THE SAME PLANE CURVE, AS WELL AS PROBLEMS 6,14,26</b>
<b>Week 15</b>	10.4 # 1-7, 9, *11-32* <b>USE YOUR CALCULATOR TO SEE THE GRAPHS</b> ,33,34,37,38,40,42,43,44-52,53,55,57,60
	10.5 # 1-16,19,20,21,22,23,25,26,27,28,29,30,31,33,34,37,39,40,41
	<b>TEST 4 (10.0-10.5)</b> <span style="float: right;"><b>GRADE (T4):</b> _____</span>
<b>Week 16</b>	REVIEW
	<b>May 6, 2024, 2PM-4PM</b>