MATH 226-W01, W101 – Calculus and Analytic Geometry II
Fall 2022 Syllabus

Instructor: Grant Kopitzke
Office: 087-B (Wausau Branch Main Building)
Phone: (715) 261-6272
Email: kopitzk@uwsp.edu

Classroom: Room 193 or by Zoom (Zoom link on Canvas)
Class Meeting Time: 11:00 – 11:50 MTWRF

Office Hours:
Office hours are a time I set aside each week for any of my students to come to my office to meet with me and get their course-related questions answered. My office hours this semester will be 12:00-1:00 MTRF in my office (location listed above). If you are not attending classes physically at the Wausau campus, then please feel free to attend office hours virtually via ZOOM. The link will be provided on the course Canvas page. Please feel free to drop in unannounced during office hours. For the students who are attending class asynchronously from a distance, within the first week of class we will determine a day of the week and time for us to meet via Zoom – this meeting will be mandatory for all students taking the course asynchronously (watching recorded lectures). If you want to come to "office hours" via Zoom, please send me an email before hand – I may not have Zoom open during my office hours unless I know someone is looking to meet at that time.

Textbook:
Calculus, Early Transcendentals, 8th ed., (7th or 9th edition is okay too) by James Stewart.
ISBN#: 978-1-305-27003-6. You can also use the "enhanced" textbook that includes the chapters for Calc III with ISBN#: 978-1-285-74155-0.

Class Meetings & Attendance:
There are two sections of this course:
W01 – students who are enrolled in the course at the Wausau campus.
W101 – area high school students who are taking the course remotely.

To accommodate each of these different sections, the course will be delivered in three different modalities:
1. To accommodate the students in W01, we will be meeting each day in Wausau room 193 at the scheduled class meeting time for an in-person synchronous experience.
2. To accommodate the students in W101 whose schedules align with that of the class, we will be streaming each day's lesson online on Zoom (the Zoom details can be found on Canvas) for an online synchronous experience.
3. To accommodate the students in W101 whose schedules do not align with that of the class, I will be uploading recordings of each day's lessons to Canvas for an online asynchronous experience. Any students taking advantage of this option will be required to meet with me virtually for a 1 hour "study session" over Zoom each week.

Although extenuating circumstances may dictate which modality you utilize each day, the W01 students will be expected to attend class in-person and participate in class. The W101 students will be expected to watch the recorded lecture videos each day (or tune in live if they prefer). Recordings will be available approximately 1 hour after class by going to *cloud recordings* under the *ZOOM* tab on Canvas. ***The password for the Zoom room is "226" (the course number).*** It is expected that you will attend all lectures either in-class, live via Zoom, or will watch the recordings each day after class. This class moves more quickly than most courses you will take in college, and if you don't keep up with the lectures and assignments, it will be extremely difficult for you to catch up.

Calculators:
A graphing calculator is recommended for this course. Calculators with a Computer Algebra System (CAS) will not be allowed on exams. This includes the TI-89, TI-Voyage 200, TI Nspire CAS CX, and TI Nspire CAS CX II. Calculators that are permissible include the TI-83 and TI-84. The most cost-effective graphing calculator that I am aware of is the Casio fx-9750GIII (about $45).

Course Content:
- We first develop integration techniques beyond simple substitution: integration by parts, trigonometric substitution, partial fractions, dealing with improper integrals, the use of Computer Algebra Systems and Numerical Methods. Next, we use integration to solve problems of arc-length, areas of surfaces of revolution, centers of mass of thin plate objects, probability, and some problems from economics, e.g., consumer surplus and measures of economic inequality.
- Next, we discuss parametric and polar representation of curves in the plane and how to obtain tangent lines, compute areas bounded by curves, arc lengths and volumes and surface areas of solids of revolution. We also study conic sections in rectangular and polar form.
- Thirdly we will study infinite sequences and series and convergence tests. We define functions by power series and compute their intervals of convergence, their derivatives and antiderivatives and learn how to obtain power-series representations for most common types of functions.
- Finally, we will study the use of differential equations for modeling and solving separable and linear first-order differential equations. We will also begin the study of vector algebra and lines and planes in 3-space as time allows.
- In the text, we'll cover chapters 7-12. A detailed list of topics is included in the course schedule.

Quantitative Literacy Learning Outcomes:
1. Select, analyze & interpret appropriate numerical data used in everyday life in numerical and graphical format.
2. Identify and apply appropriate strategies of quantitative problem solving in theoretical and practical applications
3. Construct a conclusion using quantitative justification.

Homework & Extra Credit:
Appropriate problems from the text will be assigned as concepts are covered. You should attempt all of these in an organized homework/notes notebook and bring any questions or comments for discussion at the start of the next class. Your homework from each unit will be spot checked before each exam (checked for completion – not correctness) – either in class (if you attend class in person) or via Zoom (if you attend class remotely).

If you have attempted at least 80% of the homework problems in the unit immediately prior to a given exam, and I have confirmed that proportion in a homework spot check (prior to the exam), then you will receive 5 points of extra credit toward the corresponding unit exam.

Quizzes:
There will be a take-home quiz (available on Canvas) that you will be expected to do (roughly) each week – except for weeks in which we have an exam. These quizzes will contain questions that are closely related to concepts covered in the previous few days' homework and topics covered during class. Paying attention and doing assigned homework problems should prepare you well for these quizzes. The quizzes will be available on Canvas for one day. Once you begin the quiz, you'll have one hour to complete all the problems on scratch paper and upload a picture/scan of your solutions to Canvas. Uploads must be as JPG, PNG, DOC, DOCX,

TEX or PDF files. These are the only file formats that Canvas will accept. If I cannot open the file, you'll receive a 0% on that quiz. There will be no rescheduled quizzes except for extenuating circumstances. The quizzes are open-book and open-note, but you will not be allowed to use the internet, apps, computer, or help from others. If I determine that one of those unallowed resources has been used, then you'll receive a 0 for that quiz. Repeated incidents will be reported to the school, and disciplinary action may be taken.

Exams:

For students enrolled in the W01 section, you will be expected to take all exams in-class at the Wausau campus at the scheduled times. For students enrolled in the W101 section, we will arrange for exams to be delivered to you locally. These exams must be timed and proctored, so within the first two weeks of classes you will need to work with me to find a proctor for your exams at your local high school.

There will be four in-class one-hour exams given on or near the dates listed in the course schedule on the opposite page. There will also be a two-hour comprehensive final exam on Monday, December 19th from 10:15AM – 12:15PM. All exams will be closed-book and closed-note. You may use a non-CAS graphing calculator on your exams, but no other resources will be allowed.

If you do poorly on an exam, you will be able to substitute the percentage score on your final exam in place of any one single midterm exam grade. For example, if you get a 55% on exam 2, but get an 85% on the final exam, then your exam 2 grade will automatically get bumped up to an 85%, and your final exam will also stay an 85%. No other exam grades would be affected. The midterm exam you are replacing must have a grade higher than a 0% for its grade to be replaced – in other words, if you miss an exam, then it does not qualify for grade replacement.

Policy on Missed Exams:
If a conflict prevents you from taking an exam, you should contact me well before the exam, if possible, and arrange for an early exam. Not all absences will be excused. The following list is the most common excused absences that may be accommodated:
1. An illness with a doctor's note submitted to the instructor prior to the date of the exam.
2. A documented school athletics event.
3. Jury duty or a court date, with documentation.
4. Military obligations, with documentation.

Academic Misconduct:
All students are expected to know the UWSP Community Rights & Responsibilities, and the Student Academic Standards and Disciplinary Procedures found on the Dean of Students webpage at

https://www.uwsp.edu/dos/Pages/Student-Conduct.aspx

Any instances of perceived academic misconduct will be investigated following the Student Academic Disciplinary Procedures:
https://www3.uwsp.edu/dos/Documents/UWS%2014-1.pdf

Grades:
The quizzes will count for a total of 90 points. The hour-exams are each worth 90 points (360 pts total) and the final is worth 150 points. The final letter grades cut-offs will be close to 60, 70, 80, and 90% for grades of F, D, C, B, and A.

Quizzes	15% (90 pts)
Four Hour Exams	60% (90 pts each)
Final Exam	25% (150 pts)
Total	100% (600 pts)

Grading Scheme:

Course Grade (%) at or above a:	93%	90%	87%	83%	80%	77%	73%	70%	67%	60%
Will receive at least a grade of:	A	A-	B+	B	B-	C+	C	C-	D+	D

Tentative Schedule for the Semester (subject to change)

Week	Sections	Content
Sept 6	7.1	Preview of the course, Review of Integration of common functions and using substitution, Integration by parts, Trigonometric Integrals.
Sept 12	7.2 - 7.4	Trig. Integrals, Trig-Substitution, Partial Fractions
Sept 19	7.5-7.8	CAS, Approximation Techniques, Improper Integrals.
Sept 26	8.1,8.2 **Exam I**	Arc-length of function graphs and Areas of surfaces of revolution**,**
Oct 3	8.3-8.5	Applications of integration in Physics and Economics
Oct 10	10.1-10.3	Parametric and Polar Equations for Curves in the plane, Calculus of Parametric Curves and regions.
Oct 17	10.4-10.6	Calculus in Polar Coordinates and Conic Sections in $(x, y) \wedge (r, \theta)$.
Oct 24	**Exam II** 11.1, 11.2	Infinite Sequences and Infinite Series.
Oct 31	11.3-11.5	Integral and Comparison tests for convergence and Alternating Series..
Nov 7	11.6-11.8	Ratio and Root Tests and Power Series
Nov 14	**Exam III,** 11.9	Representing functions as power series via $\frac{1}{1-r} = \sum_{i=0}^{\infty} r^n$.
Nov 21	11.10- 11.11	Representing functions as power series, Taylor and Maclaurin Series Application of Taylor Polynomials.
Nov 28	9.1-9.2	Modeling with Diff. Eq., Direction Fields, Euler's Method,. **Thanksgiving break on Nov. 24-25!**
Dec 5	9.3- 9.4, **Exam IV**	Separable ODE's, Linear ODE's, Population growth problems. **Exam IV**
Dec 12	12.1-12.3	Vectors in two and three-space and dot product.
Dec 16-27	**Final Exams**	The final exam will take place on Monday, December 19th from 10:15AM to 12:15PM in Wausau Room 193.

NOTE: IF WE NEED MORE TIME FOR SOME TOPICS, OR LESS TIME FOR OTHERS, THEN THIS SCHEDULE WILL BE CHANGED TO ACCOMMODATE. EXAMS MAY END TAKING PLACE ON DAYS OTHER THAN THE ONES LISTED HERE. IT IS IMPERATIVE THAT YOU PAY ATTENTION TO SCHEDULE DISCUSSIONS IN CLASS, AND CLOSELY WATCH ANY ANNOUNCEMENTS REGARDING SCHEDULE CHANGES ON CANVAS. YOU WILL BE RESPONSIBLE SHOULD YOU MISS AN EXAM OR ASSIGNMENT DUE DATE BECAUSE OF SCHEDULE CHANGES.