



UNIVERSITY of WISCONSIN  
**GREEN BAY**

## Mukwonago High School

College Credit in High School

### MATH 203 - Calculus and Analytic Geometry II

4 undergraduate credit hours

2019-2020

*AP Calculus BC – Room 266*

*Period 5 Orange M T & R and Period 6 Green T R & F*

### Instructor Contact Information

Ms. Wolf

[wolfje@masd.k12.wi.us](mailto:wolfje@masd.k12.wi.us)

262-363-6200 x25266

This class is a dual credit class in collaboration with the University of Wisconsin-Green Bay. Students at Mukwonago High School may choose to enroll for UWGB credits in addition to high school credit. This creates a college transcript; therefore, it creates a GPA for you which is **permanent**.

This course counts for 1 math credit on your Mukwonago High School transcript.

*Optional: Students taking this course will earn 4 undergraduate college credits on a UW-Green Bay transcript.*

*Cost of tuition is \$400 (\$100 per credit).*

You may take this class either as an AP class (AP exam fee applies), transcribed UWGB class, or both.

### Prerequisites:

AP Calculus AB

*Students will need to earn a 3, 4, or 5 on the AP Calculus AB exam to be able to take this class as a UWGB college course*

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### Course Overview/Description

This class will review all of the topics covered in AP Calculus AB. In addition, this course will cover advanced techniques of integration, analysis of two-dimensional motion with vectors, parametric, and polar equations, and sequences and series.

# Course Learning Outcomes

*To be provided by UWGB*

## How to be successful in this course

Be present for every class and get to class on time. LISTEN during class. Try to anticipate what the teacher will say next. Speak up. Never think that you are asking a stupid question. If you are confused, you have a right to ask for clarification. Listen when others ask questions. When other students ask questions make sure you listen to both the question and the answer. Take notes. Review notes after class. If you don't understand all the steps done in class, go over them later. And if you still can't figure out how the problem works, visit your teacher outside of class. This lets your teacher know that you are trying to be successful.

Do the assignment after each class. Once you've read over the notes and practiced some of the problems, try working some problems without looking at your notes or flipping back to the examples in your book. This simulates the test environment and helps you see how well you understand the material on your own. Before the next class, find some time to look over the assignment from that day's lecture and try to work the problems. Look over any graded assignments and assessments. Make sure you understand why you missed any points, and how to do the problems correctly. Since math is cumulative, you are likely to need these concepts in the future.

Have a positive attitude. Don't just do the minimum possible to get by. Try to understand what you are doing, even if it means practicing extra problems. It will pay off on the tests. Ask for help. Form study groups with other students. Don't wait until you are totally lost. Ask for help ANYTIME there is something you don't understand.

## Grading Policies

Each quarter is worth 40% and the semester final is worth 20%

For each quarter:       20% Assignments  
                                  80% Assessments

**Assignment Policy:** Daily work will be assigned and completion of daily work is necessary for success in this course. Assignments must be in a notebook and properly labeled. Notebooks will be collected on test days and graded. It is up to you to check your daily assignments if you need help. A solution key is provided to use anytime in the classroom (before school, study hall, lunch, work time during class, after school, flex period, etc...). I highly encourage you to use this solution key. Sometimes seeing a first step is all that is needed to get "unstuck" on a problem. If you are still stuck after consulting the solution key, please see me for additional assistance.

There will also be other review assignments (circuits, worksheets, book work, etc...) that will be collected from time to time.

## Letter-grade scale

UWGB Grading Scale				High School Grading Scale	
Letter Grade	Text	Grade Points per Credit	Percent	Letter Grade	Percent
A	Excellent	4.0	92-100	A+	99-100
				A	92-98
AB	Very Good	3.5	89-91	A-	90-91
				B+	88-89
B	Good	3.0	82-88	B	82-87
				B-	80-81
BC	Above Average	2.5	79-81	C+	78-79
				C	72-77
C	Average	2.0	70-78	C-	70-71
				D+	68-69
D	Poor	1.0	60-69	D	62-67
				D-	60-61
F	Unacceptable	0.0	0-59	F	0-59

## Learning Resources

*Bring the following to class everyday...*

- Textbook
- Notebook for homework
- Binder/Folder for lesson handouts
- Graphing Calculator – a TI-84 is strongly recommended

### **Primary Textbook:**

- Larson, Ron and Battaglia, Paul. *Calculus for AP*. Cengage Learning, 2017

### **Additional Resources:**

- Finney, Ross L., Demana, Franklin D., Waits, Bert K., and Kennedy, Daniel. *Calculus – Graphical, Numerical, Algebraic*. 5<sup>th</sup> ed., 2016.
- Goldstein, Benjamin. *Taylor Polynomials and Infinite Series*, Version 1.4, 2013.
- Curriculum Modules and Special Focus Materials from the College Board.

# Course Organization

A detailed outline for each chapter including pacing and assignments will be provided at the beginning of the chapter.

## Overall Outline of Topics:

Chapter	Topics Covered
1 - Limits and Their Properties (Review Material)	<ul style="list-style-type: none"> <li>Finding Limits Graphically, Numerically, and Analytically</li> <li>Continuity and 1-sided Limits</li> <li>Infinite Limits and Limits at Infinity</li> </ul>
2 – Differentiation (Review Material)	<ul style="list-style-type: none"> <li>Tangent Lines and Rates of Change</li> <li>Basic Differentiation and Differentiation Rules (product, quotient, chain)</li> <li>Implicit Differentiation</li> <li>Derivatives of Inverse Functions</li> <li>Related Rates</li> </ul>
3 - Applications of Differentiation (Review Material)	<ul style="list-style-type: none"> <li>Extrema on an Interval</li> <li>Rolle’s Theorem and the Mean Value Theorem</li> <li>Increasing and Decreasing Functions and the First Derivative Test</li> <li>Concavity and the Second Derivative Test</li> <li>Curve Sketching</li> <li>Optimization</li> </ul>
4 - Integration (Review Material)	<ul style="list-style-type: none"> <li>Antiderivatives and Indefinite Integration</li> <li>Area, Riemann Sums, and Definite Integrals</li> <li>The Fundamental Theorem of Calculus</li> <li>Integration by Substitution</li> </ul>
5 - Differential Equations (Review and <i>New Material</i> )	<ul style="list-style-type: none"> <li>Slope Fields and <i>Euler’s Method</i></li> <li>Growth and Decay</li> <li>Separation of Variables</li> <li><i>The Logistic Equation</i></li> </ul>
6 - Applications of Integration (Review and <i>New Material</i> )	<ul style="list-style-type: none"> <li>Area of a Region Between Two Curves</li> <li>Volume: Disk and Washer Methods</li> <li><i>Arc Length</i></li> </ul>
7 - Integration Techniques, L’Hopitals Rule, and Improper Integrals (Review and <i>New Material</i> )	<ul style="list-style-type: none"> <li>Basic Integration Rules</li> <li><i>Integration by Parts</i></li> <li><i>Partial Fractions</i></li> <li>Indeterminate Forms and L’Hopitals Rule</li> <li><i>Improper Integrals</i></li> </ul>
8 - Infinite Series ( <i>New Material</i> )	<ul style="list-style-type: none"> <li><i>Sequences, Series, and Convergence</i></li> <li><i>The Integral Test and p-Series</i></li> <li><i>Comparisons of Series</i></li> <li><i>Alternating Series</i></li> <li><i>The Ratio and Root Tests</i></li> <li><i>Taylor Polynomials and Approximations</i></li> <li><i>Power Series and Representations of Functions by Power Series</i></li> <li><i>Taylor and Maclaurin Series</i></li> </ul>

## UWGB Academic Integrity

As stated from the UWS 14.01 Statement of principles, "The Board of Regents, administrators, faculty, academic staff and students of the University of Wisconsin System believe that academic honesty and integrity are fundamental to the mission of higher education and of the University of Wisconsin System. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions." The entirety of the Student Academic Disciplinary Procedures can be located at

[https://docs.legis.wisconsin.gov/code/admin\\_code/uws/14](https://docs.legis.wisconsin.gov/code/admin_code/uws/14)

*These procedures state that if there is any academic dishonesty of your academic work, there are consequences that can become part of your permanent college record.*

## UWGB Drop, Withdrawal, and Extended Absences Policies\*

This course follows the UW-Green Bay policies for drops and withdrawals. Information can be found at <https://www.uwgb.edu/bursar/refunds/refund-and-drop-schedule/> and <https://www.uwgb.edu/bursar/term-deadline-calendar/>

**For information on drops and withdrawals, please refer to the UW-Green Bay folder provided to you.**

*By registering, you accept responsibility for compliance with UW-Green Bay rules, regulations, and policies ([www.uwgb.edu/policies](http://www.uwgb.edu/policies)). CCIHS courses longer than 14 weeks or longer follow the 14 week course policies. Once 14 calendar days have passed from the course start date, courses cannot be dropped without academic/fee penalties; for courses shorter than 14 weeks in duration, students have 7 calendar days from the course start date to drop a course without academic/fee penalties.*

*Course grade(s) are final and will become part of my permanent college record. Enrollment in a CCIHS course does not guarantee admission to any college, including UW-Green Bay. By registering for this course you will be responsible for paying the high school for all tuition/fees owed for this course enrollment*

For additional information and resources, visit the UW-Green Bay College Credit in High School website at <https://www.uwgb.edu/ccihhs/>