

# **MATH 2261**

## **ANALYTIC GEOMETRY &**

Your course should align to the following:

### **Standards, Goals, Objectives, or Outcomes**

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- Area A2
- Area D
- Specific Learning Outcomes: In this course the student will learn the methods and applications of differential calculus and the motivation for the integral calculus. Properly using the language and notation of the power, product, quotient, and chain rules.

4. Analyze and construct graphs of functions by using the Fundamental Theorem of Calculus and substitution to

integrals.

### **Further Information for Instructors**

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- Questions intended to assess the achievement of specific course objectives will be included in the final exam for every section of MATH 2261 according to the rotation set by the VSU General Education Council.



- Text Summary for Thomas' Calculus: Early Transcendentals, 14ed.

1.1*	Functions and their Graphs	3.7	Implicit Differentiation
1.2*	Combining Functions; Shifting and Scaling Graphs	3.8	Derivatives of Inverse Functions and Logarithms
1.3*	Trigonometric Functions	3.9	Inverse Trigonometric Functions
1.4*	Graphing with Calculators and Computers	3.10	Related Rates
1.5*	Exponential Functions	3.11	Linearization and Differentials
1.6*	Inverse Functions and Logarithms	4.1	Extreme Values of Functions
2.1	Rates of Change and Tangents to Curves	4.2	The Mean Value Theorem
2.2	Limit of a Function and Limit Laws	4.3	Monotonic Functions and the First Derivative Test
2.3	The Precise Definition of Limit	4.4	Concavity and Curve Sketching
2.4	One-Sided Limits	4.5	Indeterminate Forms and L'Hôpital's Rule
2.5	Continuity	4.6	Applied Optimization
2.6	Limits Involving Infinity; Asymptotes of Graphs	4.7	Newton's Method
3.1	Tangents and the Derivative at a Point	4.8	Antiderivatives
3.2	The Derivative as a Function	5.1	Area and Estimating with Finite Sums
3.3	Rules for Polynomials, Exponentials, Products, and Quotients	5.2	Sigma Notation and Limits of Finite Sums
3.4	The Derivative as a Rate of Change	5.3	The Definite Integral
3.5	Derivatives of Trigonometric Functions	5.4	The Fundamental Theorem of Calculus
3.6	The Chain Rule	5.5	Indefinite Integrals and the Substitution Method

\*The amount of time for review in Chapter 1 is left to the instructor. Instructors may choose to introduce topics as needed.







5. Apply the derivative to calculate rates of change and solve applied optimization problems.
6. Demonstrate how antidifferentiation and Riemann sums relate to the integral calculus.
7. Use the Fundamental Theorem of Calculus and substitution to compute definite and indefinite integrals.

### **Tentative Course Schedule**

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- Include important university dates, such as holidays and the last day to withdraw.
- Include a tentative schedule for assessments used in the course grade, such as unit exams, projects, the final exam, etc., or refer to where due dates can be found (for example, "due dates for homework are in MyMathLab"). Also, include a statement that assessment dates are tentative and may be subject to change.
- Include the university-scheduled final exam time.

### **Topics**

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- Include the topics covered. Many students need this to transfer the course.
- Topics could be incorporated into the above Course Schedule

### **Assignments (Exams, Projects, Homework, etc.)**

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- General description of the assignments
- Due dates, including the official date of the final exam as indicated by the Registrar
- Policies for missed assignments, make-up assignments, late assignments, and/or extra credit

Recommended Syllabus Statement:

**Make-Up Work:** Make up work or alternative assignments will be determined by the Registrar.

University Attendance Policy from the VSU catalogue:

“The University expects that all students shall regularly attend all scheduled class meetings held for instruction or examination. . . . It is recognized that class attendance is essentially a matter between students and their instructors. Instructors must explain their absence policy in the course syllabus. All students are held responsible for knowing the specific attendance requirements as prescribed by their instructors and for the satisfactory make-up work missed by absences. When students are to be absent from class, they should immediately contact the instructor. A student who misses more than 20% of the scheduled classes of a course will be subject to receive a failing grade in the course.”

- **Getting Help Learning Math:** Reaching out to get help when learning mathematics is part of the learning process. Some noteworthy learning resources available to you are:

- o **The Academic Support Center:** The Academic Support Center (ASC) provides free peer tutoring in core curriculum courses, including math, writing, sciences, social sciences, and languages. **The ASC also provides supplemental instruction (tutor-led study group sessions) for some courses (adapt this statement based on whether or not a peer facilitator is embedded in your course).** Drop by the ASC in Odum Library, 2<sup>nd</sup> floor, call (229)-333-7570 to make an appointment, email them at [asc@valdosta.edu](mailto:asc@valdosta.edu), or visit their website [www.valdosta.edu/asc](http://www.valdosta.edu/asc) for more information.

- o **ThinkingStorm** is a 24/7 online tutoring service provided by the Academic Support Center through Blazeview. **You may want to in2.2 (p0g 0 1a.4 (i)3.1nJg9.96 8 (es)f (t124.564t\*EMC BT/LB**







Website: <https://www.valdosta.edu/academics/elearning/blazeview.php> TOLL FREE Phone: 1-855-772-0423

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