MATH 1823 SYLLABUS
Calculus & Analytic Geometry I
An Online Course

PURPOSE OF THE COURSE:
This course is designed as the first of four courses in the Calculus and Analytical Geometry Sequence. Students will understand calculus and analytical geometry concepts through visualization, numerical, and graphical experimentation. The student will be introduced to functions and models, limits, derivatives and the Mean Value Theorem as well as different graphing techniques.

COURSE DESCRIPTION:
Topics covered include:
- the definition of limit, limit properties, and epsilon-delta proofs;
- limits and continuity of functions;
- the definition of derivative, slope of tangent lines, and rates of change;
- rules for derivatives of polynomial, rational, radical, and trigonometric functions, chain, product, and quotient rule;
- implicit differentiation, related rates;
- relative and absolute extreme values, inflection points, and curve sketching;
- The Mean Value Theorem, optimization word problems, and antiderivatives.

REQUIRED TEXT & MATERIALS:
EnhancedWebAssign, code must be purchased to allow students to have access to course materials.

You will find the course code inside the course.

This code only allows you into the course. You will lose access to the materials within 30 days unless you get and access code for the textbook and resources.

You will need to purchase an access code for your WebAssign course. To purchase your access code you will need to log into WebAssign and enter your course code, then purchase the textbook access code once you access the course. You want to purchase the LIFETIME OF EDITION version which will allow you to have access to the text for all the WebAssign courses that use the text.

The last item required for this course is a graphing utility. The most convenient graphing utility would be a graphing calculator, such as the TI-84 or TI-86. Note that you may use a graphing calculator on your exams, but it cannot have the ability to perform symbolic manipulation (TI-89 and higher are not allowed).

You will need access to a computer equipped with high-speed internet access, Adobe Flash Player 9.0 or newer, and Adobe Reader 9.0 or newer. You can access the Adobe Flash Player and Adobe Reader programs from the Required Tech page of the Orientation to this course.

OPTIONAL MATERIALS

Note: The text is included in its entirety (same page references etc) and viewable inside a web browser from your EnhancedWebAssign account. Since you have the textbook in electronic form, you do not need to purchase the textbook in physical form unless you specifically choose to.


**PREREQUISITES:**
Prerequisite: 1523 at OU, or satisfactory score on the placement test, or, for incoming freshmen direct from high school, satisfactory score on the ACT/SAT.

**LESSON ASSIGNMENTS:**
To start a lesson, begin with reading the corresponding section(s) from the textbook. The contents of each lesson can be found on the following page. The reading can be done from the physical text or from the eBook via your EnhancedWebAssign (EWA) account. **This is the most important part of this course.** Skimming through the pages will not suffice. It is imperative that you read every word and understand every word. Often when there is a paragraph with a long equation stuck in the middle of it people tend to skip over the equation. Even I catch myself doing this, and I love math! Force yourself to read each equation through slowly. In between textbook readings, you should view the PowerPoint file for the lesson, also accessible from your EWA account. These are notes written to accompany (not replace) the text.

Remember that you aren't expected to understand everything the first time you see it. It is normal to have to read some things two or three times before it starts making sense. Don't worry if you have to read something five or six times. Also, don't despair if one concept, like epsilon-delta proofs, never gels. The effort you put forth now will be fruitful eventually.

**HOMEWORK:**
The homework is assigned on the EnhancedWebAssign (EWA) platform. If you have not used an online course management system before, it may take a little bit of time before you feel comfortable with the interface. Try to be patient. EWA contains a variety of resources for you, and you should take advantage of them (or at least try them out). These include links to the textbook, multimedia content such as instructional video clips, tutorial exercises, plus helps and hints. You can work the problems multiple times, so it is possible to get 100% on every HW by being persistent.

**ABOUT THE GRADING:**
**EXAMS:** Exams 1, 2, and 3 have ten problems worth 10 points each. The final exam has 13 problems worth 8 points each (which means it has 4 “bonus” points on it). Please note that the final exam is comprehensive. All exams are done on paper so that you can show your work.

**COURSE GRADE:** Your grade will be calculated by two different methods, and the higher of the two results will determine your course grade:
- Method #1: Average your four exam scores, weighting each equally.
- Method #2: Weight each exam 22% and weight your HW average 12%.

The first method allows students to be selective about working HW in a way that is useful to them without being penalized for not doing assigned problems over topics that they may already have mastered. The second method deals with borderline grades, since a strong HW score can raise your score to the next letter grade if your exam average doesn’t quite get you there.
PROBLEMS OR QUESTIONS:
If you have course content related questions, please email your instructor. If something isn’t working right in Canvas, email cidldev@ou.edu with a description of the problem and the course you are in.

ACADEMIC INTEGRITY
As a student taking a course at the University of Oklahoma, you are expected to uphold the academic integrity code. Please visit http://integrity.ou.edu and familiarize yourself with the standards you will be held to while taking your course.

RELIGIOUS OBSERVANCE
It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

REASONABLE ACCOMMODATION POLICY
Students requiring academic accommodation should contact the Disability Resource Center for assistance at (405) 325-3852 or TDD: (405) 325-4173. For more information, please see the Disability Resource Center website http://www.ou.edu/drc/home.html Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact me personally as soon as possible so we can discuss accommodations necessary to ensure full participation and facilitate your educational opportunities.

TITLE IX RESOURCES AND REPORTING REQUIREMENT
For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on call 24/7. To learn more or to report an incident, please contact the Sexual Misconduct Office at 405-325-2215 (8 to 5, M-F) or OU Advocates at 405-615-0013 (24/7). Also, please be advised that a professor/GA/TA is required to report instances of sexual harassment, sexual assault, or discrimination to the Sexual Misconduct Office. For more information, please see http://www.ou.edu/eoo.
Course Plan MATH 1823

Lesson 1
1. Read Appendices A, B, C, D, and H in your Calculus e-text.
2. View Lesson 1 PowerPoint
3. Complete Math 1823 Lesson 1 Assignment

Lesson 2
1. Read Section 1.1: Four Ways to Present a Function and Section 1.2: Mathematical Models: A Catalog of Essential Functions in your Calculus e-text.
2. View Lesson 2 PowerPoint
3. Complete Math 1823 Lesson 2 Assignment

Lesson 3
1. Read Section 1.3: New Functions from Old Functions in your Calculus e-text.
2. View Lesson 3 PowerPoint
3. Complete Math 1823 Lesson 3 Assignment

Lesson 4
1. Read Appendix G: Graphing Calculators and Computers in your Calculus e-text.
2. View Lesson 4 PowerPoint
3. Complete Math 1823 Lesson 4 Assignment

Lesson 5
1. Read Section 1.4: Tangent Lines and Velocity Problems in your Calculus e-text.
2. View Lesson 5 PowerPoint
3. Complete Math 1823 Lesson 5 Assignment

Lesson 6
1. Read Section 1.5: The Limit of a Function in your Calculus e-text.
2. View Lesson 6 PowerPoint
3. Complete Math 1823 Lesson 6 Assignment

Lesson 7
1. Read Section 1.6: Calculating Limits Using the Limit Laws in your Calculus e-text.
2. View Lesson 7 PowerPoint
3. Complete Math 1823 Lesson 7 Assignment

Lesson 8
1. Read Section 1.7: The Precise Definition of a Limit in your Calculus e-text.
2. View Lesson 8 PowerPoint
3. Complete Math 1823 Lesson 8 Assignment

Lesson 9
1. Read Section 1.8: Continuity in your Calculus e-text.
2. View Lesson 9 PowerPoint
3. Complete Math 1823 Lesson 9 Assignment
Lesson 10
1. Read Section 2.1: Derivatives and Rates of Change in your *Calculus* e-text.
2. View Lesson 10 PowerPoint
3. Complete Math 1823 Lesson 10 Assignment
4. Schedule Exam 1
5. Take Exam 1 on paper

Lesson 11
1. Read Section 2.2: The Derivatives as a Function in your *Calculus* e-text.
2. View Lesson 11 PowerPoint
3. Complete Math 1823 Lesson 11 Assignment

Lesson 12
1. Read Section 2.3: Differentiation Formulas in your *Calculus* e-text.
2. View Lesson 12 PowerPoint
3. Complete Math 1823 Lesson 12 Assignment

Lesson 13
1. Read Section 2.4: Derivatives of Trigonometric Functions in your *Calculus* e-text.
2. View Lesson 13 PowerPoint
3. Complete Math 1823 Lesson 13 Assignment

Lesson 14
1. Read Section 2.5: The Chain Rule in your *Calculus* e-text.
2. View Lesson 14 PowerPoint
3. Complete Math 1823 Lesson 14 Assignment

Lesson 15
1. Read Section 2.6: Implicit Differentiation in your *Calculus* e-text.
2. View Lesson 15 PowerPoint
3. Complete Math 1823 Lesson 15 Assignment

Lesson 16
1. Read Section 2.7: Rates of Change in your *Calculus* e-text.
2. View Lesson 16 PowerPoint
3. Complete Math 1823 Lesson 16 Assignment

Lesson 17
1. Read Section 2.8: Related Rates in your *Calculus* e-text.
2. View Lesson 17 PowerPoint
3. Complete Math 1823 Lesson 17 Assignment

Lesson 18
1. Read Section 2.9: Linear Approximations and Differentials in your *Calculus* e-text.
2. View Lesson 18 PowerPoint
3. Complete Math 1823 Lesson 18 Assignment
4. Schedule Exam 2
5. Take Exam 2 on paper
Lesson 19
1. Read Section 3.1: Maximum and Minimum Values in your Calculus e-text.
2. View Lesson 19 PowerPoint
3. Complete Math 1823 Lesson 19 Assignment

Lesson 20
1. Read Section 3.2: The Mean Value Theorem in your Calculus e-text.
2. View Lesson 20 PowerPoint
3. Complete Math 1823 Lesson 20 Assignment

Lesson 21
1. Read Section 3.3: How Derivatives Affect the Shape of a Graph in your Calculus e-text.
2. View Lesson 21 PowerPoint
3. Complete Math 1823 Lesson 21 Assignment

Lesson 22
1. Read Section 3.4: Limits at Infinity: Horizontal Asymptotes in your Calculus e-text.
2. View Lesson 22 PowerPoint
3. Complete Math 1823 Lesson 22 Assignment

Lesson 23
1. Read Section 3.5: Summary of Curve Sketching and Section 3.6 Graphing with Calculus and Calculators in your Calculus e-text.
2. View Lesson 23 PowerPoint
3. Complete Math 1823 Lesson 23 Assignment

Lesson 24
1. Read Section 3.7 Optimization Problems in your Calculus e-text.
2. View Lesson 24 PowerPoint
3. Complete Math 1823 Lesson 24 Assignment

Lesson 25
1. Read Section 3.8 Newton’s Method in your Calculus e-text.
2. View Lesson 25 PowerPoint
3. Complete Math 1823 Lesson 25 Assignment

Lesson 26
1. Read Section 4.9 Antiderivatives in your Calculus e-text.
2. View Lesson 26 PowerPoint
3. Complete Math 1823 Lesson 26 Assignment
4. Schedule Exam 3
5. Take Exam 3
6. Schedule Exam 4
7. Take Exam 4