# CALCULUS 12 COURSE OUTLINE

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**In The Classroom: RESPECT YOURSELF, RESPECT YOUR PEERS AND YOUR TEACHER**

* **ATTENDANCE** is taken at the beginning of the class. Excessive lates (more than three times) will result in a call home and a discussion with the administration.
* **BOOKS & SUPPLIES** must be brought to class every period. This includes pen/pencil, eraser, textbook, binder with lined/**graph** paper and calculator. You will NOT be allowed to return to your locker to get books and materials. All graphs must be done on graph paper.
* **Take down notes given during class.** These notes will help you study for the tests and quizzes.
* **BE AN ACTIVE LEARNER! Do the “Try- questions” in class, ask questions, and use class time effectively.**
* Get **HELP** as soon as possible if you are having trouble. There is usually some time after the lesson to ask questions. ***Do not let little problems snowball into big problems.***
* **RESPECT YOUR CLASSROOM:** No food or drink (except water), keep desks and learning area clean and safe.
* **NO CELL PHONES ALLOWED!**
* **FOLLOW THE SCHOOL DRESS CODE!**

**Homework Assignments**

* **HOMEWORK** is assigned **EACH CLASS**. Keep up with the homework as it is assigned.
* Mark all homework with the **section, page number and date** at the beginning, and **SHOW ALL WORKING**. Homework done with no working out or calculations will be considered as **INCOMPLETE**.
* Homework assignments are to be marked using the answers at the back of the book and mistakes corrected. Homework **will not be considered complete** unless homework is marked and mistakes are corrected.

**Quizzes & Tests**

* + **QUIZZES** will be given regularly, and cover several sections in a chapter. **TESTS** cover work covered in a chapter. At least one week’s notice will be given for tests. Quizzes may be given with or without notice.
* If you are unexpectedly **ABSENT** on a test day, please have your parents call me ***prior*** to the test time to notify me of your absence. You will receive a grade of **ZERO** for that test if I do not receive notification. You have one week to write a test you missed.
* Cases of **COPYING & CHEATING** will immediately receive a mark of ZERO. Your parents and school administration will be notified of the incident. Refer to your student agenda for more information.
* **Books**

**We are using the textbook CALCULUS by Finney, Demana, Waits and Kennedy**

#### EVALUATION

* Marks will be calculated ***cumulatively*** throughout the year with the following breakdown:

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| **Assessment Item** | **Terms 1, 2 and 3 Grade** | **Final Course Grade** |
| Homework Checks  | 5% | **80%** |
| Problem Sets | 15% |
| Quizzes | 15% |
| Tests/Midterm | 65% |
| Final Exam (mid-June) |  | **20%** |

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| **TOPICS** | Homework |
| **Chapter 1 – Prerequisites for Calculus (10 classes)** |
| 1.1 Lines and Quadratic Functions |  |
| 1.2 Other Functions and their Graphs-2 classes |  |
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| Inverse Functions. Even and Odd Functions. |  |
| 1.6 Trigonometric Functions and Equations-2 classes |  |
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| 1.3 Exponential Functions and Equations |  |
| 1.5 Functions and Logarithms and Equations-2 classes |  |
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| **Problem Set #1** |  |
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| **Chapter 2 – Limits and Continuity ( 11 classes)** |
| 2.1 Rates of Change and Limits (5 classes) |  |
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|  |  |
| 2.2 Limits Involving Infinity |  |
| 2.3 Continuity |  |
| 2.4 Rates of Change and Tangent Lines |  |
| **Problem Set #2** |  |
| **Review** |  |
| **TEST** |  |
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| **Chapter 3 – Derivatives (16 classes)** |
| 3.1 Derivative of a Function |  |
| 3.2 Differentiability |  |
| 3.3 Rules for Differentiation ( 2 classes) |  |
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| 3.4 Velocity and Other Rates of Change |  |
| 3.5 Derivatives of Trigonometric Functions |  |
| 3.6 Chain Rule (2 classes) |  |
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| 3.7 Implicit Differentiation |  |
| 3.8 Derivatives of Inverse Trigonometric Functions (2 classes) |  |
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| 3.9 Derivatives of Exponential and Logarithms Functions (2 classes) |  |
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| **Problem Set #3** |  |
| **Review** |  |
| **TEST** |  |
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| **Chapter 4 – Applications of Derivatives ( 12 classes)**  |
| 4.1 Extreme Values of Functions |  |
| 4.2 Mean Value Theorem |  |
| 4.3 Connecting $f^{'}$ and $f^{''}$ with the Graph of $f$ |  |
| 4.4 Modeling and Optimization (2 classes) |  |
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| 4.5 Linearization and Newton’s Method ( 2 classes) |  |
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| 4.6 Related Rates ( 2 classes) |  |
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| **Problem Set #4** |  |
| **Review** |  |
| **TEST** |  |
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| **\*\*MIDTERM** |  |
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| **Chapter 5 – The Definite Integral ( 8 classes)** |
| 5.1 Estimating with Finite Sums |  |
| 5.2 Definite Integrals |  |
| 5.3 Definite Integrals and Antiderivatives |  |
| 5.4 Fundamental Theorem of Calculus ( 2 classes) |  |
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| 5.5 Trapezoidal Rule |  |
| **Problem Set #5** |  |
| **Review** |  |
| **TEST** |  |
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| **Chapter 6 – Differential Equations, Mathematical Modeling and Integration Techniques (13 classes)** |
| 6.1 Slope Fields  |  |
| 6.2 Integration by Substitution ( 4 classes) |  |
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| 6.3 Integration by Parts (2 classes) |  |
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| 6.5 Integration by Partial Fractions  |  |
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| 6.4 Exponential Growth and Decay. Newton’s Law of Cooling.( 2 classes) |  |
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| **Problem Set #6** |  |
| **Review** |  |
| **TEST** |  |
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| **Chapter 7 – Applications of Definite Integrals ( 7 classes)** |
| 7.1 Integral as Net Change |  |
| 7.2 Areas in the Plane ( 2 classes) |  |
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| 7.3 Volumes ( 3 classes) |  |
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| **Problem Set #7** |  |
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| **FINAL REVIEW**  |  |
| **FINAL REVIEW** |  |
| **FINAL EXAM** |  |