

# AP Calculus AB Semester 2

## Syllabus – Regina Christian School

*\*Calculus 30 runs first semester, September to January. AP Calculus extends to Early-May culminating in the AP Exam. This second semester class is named Calculus 30L which includes all AP concepts (over and above regular Calculus 30 concepts) and advanced integral calculus concepts. Calculus 30L runs January to June.*

### Course Overview

Students will develop an understanding of the interconnectedness and beauty of calculus topics and to be thoroughly trained and empowered to understand Calculus at a deep level. I hope to help students build a strong foundation that will give them tools to succeed in post-secondary studies and, ultimately, their careers. Students will be required to focus on developing solid work ethic, reasoning skills, and self-assessment. Students will work both collaboratively and as individuals to foster the satisfaction of understanding calculus concepts.

### Primary Textbooks and Resources

- Stewart, James, et al. *Calculus: A First Course*, Toronto, Ont.: McGraw-Hill Ryerson, 1989. (This textbook is similar to textbooks the *University of Regina* and the *University of Saskatchewan* are presently using)
- Finney, Ross I., et al. *Calculus: Graphical, Numerical, Algebraic*. Upper Saddle River, NJ.: Pearson Education Prentice Hall, third edition 2007.
- AP Central ([apcentral.collegeboard.com](http://apcentral.collegeboard.com))
- Thiessen, Burt, *Calculus 30*. Saskatoon, Saskatchewan. Globe Printers Limited, 2005

\*Additional resources may be used if I determine areas of student weakness as the course progresses.

### Technology Requirement

I have a class set of **Texas Instruments 84 Plus CE** graphing calculators available for student use in the classroom. Students are encouraged, but NOT required, to obtain their own Graphing Technology to assist them in this course. They will NOT be allowed on exams however. We will use the graphing calculator as a tool to assist in learning in a variety of ways including:

- a. Graphing functions (adjusting window settings for useful viewing).
- b. Analyzing functions (roots, values, max/min, derivatives, and Definite Integrals).
- c. Programming/using programs when appropriate.
- d. Identifying and avoiding calculator misuse.
- e. Learning through explorations suitable to graphing calculator display.

## AP Calculus 30L Course Outline

See outline for Semester 2 document online for anticipated Unit dates

([https://www.mrmathwell.com/wp-content/uploads/2023/06/AP-Calculus-30L-topics-outline-22\\_23.pdf](https://www.mrmathwell.com/wp-content/uploads/2023/06/AP-Calculus-30L-topics-outline-22_23.pdf))

### Topics in AP Calculus AB

#### Unit 1

1. Inverse Trig Functions and their Derivatives-7.5/7.6 (Stewart Text)
2. Inverse Functions and their derivatives (Finney p. 165)
3. Intermediate Value Thm / Rolle's Thm / Mean Value Thm (Finney Text p. 196)
4. Linear approximation

#### Unit 2

1. Average Value of a function
2. Fundamental Theorem of Calculus
3. Riemann Sums

#### Unit 3

1. Differential Equations
2. Slope fields
3. Separable differential Equations
4. L'Hopitals rule
5. Euler's Method (Finney p. 325)

#### Unit 4

1. Solids of Revolution (Finney)

#### Unit 5

1. AP Exam practice

#### Unit 6

Research Assignment

#### Unit 7

1. Integration (Handouts)
  - a. By parts
  - b. Using Partial Fractions
  - c. Using trigonometric Substitution

Final Exam – NO final exam provided student writes AP Exam in lieu

### Marks (Semester 2 Calculus 30L)

Evaluations are given to assess each outcome in the curriculum. Marks will be given for performance on each outcome. Outcomes are weighted roughly the same, as each chapter in the textbook roughly corresponds to each outcome. The approximate values are as follows.

#### Grading

Course work

- Tests      100 marks each
- Quizzes    20 marks each
- Asn'ts     5-20 marks each

Final Grade

- Course work      100%

\*\*There is NO final exam in Calc 30L provided student writes AP Exam in May

**RCS and Regina Public Schools has made the switch to Edsby for grading and communication with students and parents. Mr. Maxwell will plan to use Edsby for communication instead of Google Classroom as in previous years. Mr. Maxwell's website ([www.mrmathwell.com](http://www.mrmathwell.com)) and Edsby will be used for all materials and video lessons.**

On my YouTube channel you will find live videos of my classroom lectures by section / concept. If a student misses class or needs to hear the material again, students should access the videos at:

<https://www.mrmathwell.com/index.php/calculus-30/> for the Calculus 30 course material and <https://www.mrmathwell.com/index.php/ap-advanced-placement-calculus-ab/> for the Calculus 30L (second semester) course material

**Students that miss a class MUST watch the video of the lesson they missed before the next period** so as not to get behind. Calculus moves fast and I don't want anyone to fall behind. If you are unable to watch due to travelling or severe illness you may have be assigned study hall upon return to catch up.

**Quizzes** will be given aprox. 1-3 times each chapter. There will be a chapter exam after each chapter is completed.

**\*Grading:** No penalty will be given for Assignments that are submitted on time. Quizzes, assignments, and tests will be returned and discussed within a week of the due date. If an assignment is submitted after the assessment material has been discussed (answers given etc) then the late assignment will no longer be graded the same way. **Assignments that are not handed in on time (at the beginning of the class on the due date) will be assessed a mark of zero.** This zero will hold until the student hands the assignment in and the teacher has a chance grade the assessment. **Reduced credit may be given to a student's late assignment** based on the information released in class on the concepts evaluated (including if a student hands in an assignment that has already been placed in the assn't return bin). In this case, **the student is to arrange with the teacher an appropriate alternate assignment that may be substituted for full marks, if the student so desires.** This alternate assignment will be given and completed on Course Completion day (Alternate assn't may be given outside of Course Completion at teacher's discretion). **Expect frequent quizzes and other assessments** that will be used to help guide instruction and learning. If you would like some **extra help**, please speak to me so we can arrange a time that works for both our schedules.

**\*Late Policy** – As per school late policy, any assignments that are late are given a mark of zero and **Course Completion\*** policy will be in effect.

**\*Missing Tests** - Tests that are missed must be written *the first day back* to school (on a spare or in study hall at lunch or after school) and **may** require a note or email from parents or doctor confirming the **excused absence**. If a student misses a second test due to illness, a **Doctor's note WILL be required** for a rewrite. Making up a missed exam may be given on course completion days if this procedure is not followed.

**\*Rewrites** – **There will be no Test or Quiz rewrites.** In the event of an excused absence on a test day, when the exam has not been written the day the student returns to school, as alternate exam may be given on Course completion day.

**\*Course Completion** – Course completion days (half days – afternoon) are designed to help students complete outstanding assignments. It is important that students do the very best they can to keep up to date with all assignments given in this course. This day has been set aside to meet the needs of students, not as a punishment. **Note - These course completion days are sanctioned school days, they are not holidays.** If you have kept up with your work and do not have any evaluations you need to write, then you do not have to come to school. But, **there may be assignments or labs that can only be made up on course completion days** so please don't make plans to miss these days in case you need to be here for some reason.

**\*Studying** – Students generally have questions about how to properly study for exams and quizzes. I tell them that when they can correctly complete a type of question, without any help or looking at the answer first, then they have sufficiently studied that type of question and are ready for the exam. Having said this, **I allow students 1 small cue card for each**

**of their exams.** They may write anything they want on these cards (some restrictions) and may use them as prompts during the exam. This does not replace good studying, however. (Not applicable in Calc 30L second semester)

**\*Homework** – It is important that Students keep up with their homework. The expectation will be that **all homework is attempted and problems will be addressed with the teacher the following day.** There will be frequent quizzes that the homework prepares the students for. Homework SHOULD be completed for each section before the next section is taught. Students should attempt every question that is assigned. An attempt means that they have, at minimum, written down given information and attempted to use some concept / equation to arrive at a solution. There are ALWAYS examples in the text or notes that are directly or indirectly related to each question assigned. Students should make every attempt to use these examples as well as the ones given in class to determine a reasonable solution. Homework is used as formative assessment and will not be graded.

**\*Earned Options** – There are NO earned options in Calc 30L since the AP exam, if it is written as scheduled, will account for the final exam. In the rare case the AP Exam is NOT written by a student or students, there WILL be a final exam given in June.

I look forward to this semester with you – please remember to be diligent, to listen carefully during instruction, do your homework faithfully, ask questions when you don't understand, and study for exams. If you work hard, you will succeed!! God Bless you! Mr. Maxwell

\*\*\*PARENTS/GUARDIANS, **PLEASE EMAIL ME** TO LET ME KNOW YOU HAVE READ THIS SYLLABUS, ([jeff.maxwell@rbc.sk.ca](mailto:jeff.maxwell@rbc.sk.ca))

OR,

**SIGN BELOW** TO INDICATE THAT YOU HAVE SEEN AND READ THE EXPECTATIONS OF YOUR STUDENT FOR THIS CLASS. *Thank You.*

**(show this *signed* syllabus to Mr. Maxwell as your first assignment)**

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Student Name (printed)

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Parent / Guardian signature