Math 520
Syllabus
Spring 2014

Instructor: Mr. Lang   email: clang@andover.edu

Text: *Single Variable Calculus (3rd Edition)*, James Stewart

Materials: Organization is one of the secrets to succeeding at Phillips Academy. So, in order to help you succeed, I strongly encourage you to have a separate 3-ring binder, filled with loose leaf (I prefer) grid paper and dividers, that is devoted only to Math. The most important aspect of a three ring binder is that it allows you to be flexible. Within the binder I would like you to have at least the following sections, separated with dividers:

1. Class Notes/Handouts/Supplements and Problem Sets
2. Homework
3. Tests/Quiz

Chapter's Covered: Chapter 6 and various other sections. See assignment sheet for daily details.

Attendance: Please be on time to class. If tardiness becomes a pattern, I may give you a cut without warning.

Grading: Your grade will be determined by adding the points you earned and dividing by the total possible points for the term. The equation I will us is:

$$\frac{points\ you\ earned}{Total\ possible\ points} \cdot 100 = grade\%$$

My grade scale is to the right. Mathematics is not a spectator sport. It requires you to be actively involved in the learning process and an active listener. Therefore, a small portion of your final grade will be derived from my observations regarding your contributions to the class dynamic.

Grade Scale	
%	Grade
93-100	6
85-92	5
77-84	4
69-76	3
60-68	2
50-59	1
0-49	0

Collaboration: In this course there will be assignments/assessments that you will be required to work on by yourself. There may also be assignments/assessments that you will be required (or encouraged) to collaborate on with your classmates. On such collaborative endeavors, it is expected that you will discuss the problems with each other and use each other as resources. However, what you write down must be a reflection of your own understanding of the material. It is never okay to just copy what someone else has written or to present someone else's work as your own. Similarly, you must not allow another student to copy your work. To do so is considered plagiarism and academic dishonesty.

How you earn points: Style Points: A portion of each test ($\sim$2 points) may be based on the written presentation of your solutions. I expect almost everyone to receive all the points. If I have to search for or read a solution several times to find a train of thought, or if a solution is illegible, ambiguous, or incoherent, it will effect your style points. The best place to look for examples of good math writing is your textbook. The explanations in the book are ultimately what I want you to be able to produce (and even better, they are great examples of how to solve the problems). See the document entitled *Style Sheet* for specific aspects of a well-written solution. The following is a how style points are calculated.

Style Points Scale		
0	1	2
Beginning	Decent	Good

Tests and Quizzes: We will have 4 or 5 tests. Each test will be worth $\sim$50 points. You can also expect a few quizzes each worth less than a test. There will be a final exam worth $\sim$100 points.

<u>Test Corrections:</u> Test corrections are a valuable tool in learning mathematics. You can receive up to half of the credit back on a question if you can correct the answer and show the solution steps to support it. Write the full solutions on a separate sheet and then submit it attached to the original test (so I can see how many points lost on the particular question). The answer must be perfectly correct with all parts present. Solutions that you just write down the solution will not be graded. When in doubt, copy and label the figure or graph and write a few sentences describing how you came up with the answer. I will not grade late test corrections. Test correction grades are not added to your test score. Think of them as a separate quiz grade. **Test corrections are not a collaborative assignment**—come see me with questions.

Homework: It goes without saying how important the homework problems are to your success in the class. I encourage you to collaborate on homework. Assignment sheets will be distributed throughout the term.

Late Policy: An assignment is late if it is not in my hand at the close of class. I will accept late assignments if they are in my hand at the close of the day on which they are due. Late assignments will not receive full credit.

Academic Support: Conference periods will be held in Morse 302. If you start falling behind or simply want to hang out, come by during conference period; you don't need an appointment. You can drop into Math Study Hall is in Morse 201 from 8-9:15pm Monday through Thursday.

Calculators: A `TI-83`, `TI-83+`, or `TI-84` will be used in this course. Bring your calculator to every class, as it will allow you to participate in the lessons. The Mathematics Department recognized that students often use programs on the `TI-83` series or `TI-84` series calculators to store lists of formulas and equations to have them available on tests. The Departments policy is that this is acceptable. However, the Department also recognizes that students are best served by understanding and remembering formulas, not by just having them stored in the calculator memory. A teacher may, with advance notice, give a test on which no calculators are allowed. No calculator that has CAS (Computer Algebraic System) capabilities, including but not limited to the `TI-89`, `TI-92`, and `TI-Voyager`, may be used for in class or departmental exams. Possession of such a calculator in the test room during a departmental exam will be treated as academic dishonesty.

Academic Honesty: If homework is collected, every student will make a note at the top of his or her paper indicating any help that he or she receives. He or she will not take a solution, whether it be from a peer, a solutions manual or a website and submit it as his or her own. On quizzes and tests, the work a student submits will be entirely his or her own. Wandering eyes can open the door for doubt and call a students honesty into question. Dont put yourself in that situation. On group assignments, the work submitted will be entirely a product of the members of the group. After a graded assignment is returned, no student will submit a corrected copy and claim the instructor made an error in grading the work.

Other: This is a classroom, not a Café. Please, do not bring any food or drink into the building.

Math Style Sheet

1. **Make it clear what the problem says:** It should be made clear to the reader what you are trying to solve without looking at the book. You can rephrase the problem.

2. **Show the full solution:** Someone else reading your paper should be able to follow each step without referring to the book. It is not usually necessary to show arithmetic but each important step in a problem ?should be written out.

3. **Organize solution vertically on the page:** Equal signs should line up vertically. Each step should be written under the preceding step.

   This is difficult to read...

   $$\lim_{h\to 0}\frac{\frac{1}{x+h}-\frac{1}{x}}{h} \quad \to \quad \frac{\frac{x-(x+h)}{x(x+h)}}{h} \quad \to \quad \frac{\frac{-h}{x(x+h)}}{h} \quad \to \quad \frac{-1}{x(x+h)} \quad \to \quad -\frac{1}{x^2}$$

   This is easier to read...

   $$\lim_{h\to 0}\frac{\frac{1}{x+h}-\frac{1}{x}}{h} = \lim_{h\to 0}\frac{\frac{x-(x+h)}{x(x+h)}}{h}$$
   $$= \lim_{h\to 0}\frac{\frac{-h}{x(x+h)}}{h}$$
   $$= \lim_{h\to 0}\frac{-1}{x(x+h)}$$
   $$= -\frac{1}{x^2}$$

4. **Arrows are not equal signs:** Dont confuse an arrow ($\Rightarrow$ or $\to$) with an equal sign ($=$). Equal signs are used to show two expressions are the same, arrows are used to point out or lead the reader to a different place on the page.

5. **Each problem deserves its own space:** Each problem should be written under the preceding problem. Dont worry if there is a lot of white space on the side of the page, it ends up being a great space to write comments and ideas for future studying.

6. Make all **fraction bars horizontal,** not diagonal.

   This $\qquad \dfrac{x^2+3x-1}{x^2-3} \qquad$ Not This $\qquad x^2+3x-1/x^2-3$

7. **Use words liberally:** words like "therefore" and "if" and "then" and "prove" and "and" and "or" and so, etc.

8. **Label Axis and Key Points:** When sketching a graph write on the graph the coordinates of important points and the unit length on each axis. Do not simply copy what your calculator screen looks like.

9. **Functions have Arguments:** Functions like sine, cosine, tangent, logarithms, etc. have arguments that should be included each time. cos is not acceptable, but $\cos(t)$ or $\cos t$ is.