Course Syllabus
Math U117 key # 11144
Interactive Mathematics Fall 2005

Time: MWR 1:35pm – 2:40pm
Instructor: Dean Serenevy
Office: Nightengale 534
Email: dean@math.serenevy.net
Web Page: http://dean.serenevy.net/
Office Hours: MWR 2:40pm – 3:50pm

Course Objectives: This course is designed to develop problem-solving skills while learning to apply mathematics to real life situations. Mathematical concepts to be studied: normal distribution and standard deviation; graphs of linear and non-linear functions, the concept of derivative, derivatives for exponential functions, *e*; topics in probability, binomial distributions, central limit theorem, polling theory.

Styles of Learning: This course will make extensive use of collaborative groups, although grading will be based on individual work. It is designed for the student who enjoys hands-on activities, social interaction and pondering mathematical questions.

Books: *The Pit and The Pendulum, Small World,* and *Pollsters Dilemma.* Purchase packet at Gnomon Copy. You will need to bring the unit under investigation to class everyday

Materials: A graphing calculator is required for this course equivalent to the TI 83. You will need to bring this to class everyday. You will also need graph paper.

Attendance: Daily attendance is required. Since emergencies may arise, students are allowed 4 absences. That is 4 absences **no matter what the reason**. For every absence greater than 4 your final grade will be lowered a grade. For instance someone with a B-average and six absences will have their grade lowered by two to a C. I will not be reteaching lessons for those who miss them.

Cell Phones: Keep them turned off!

Help: Besides my office hours, assistance is available at the Math Tutoring Center in room 540 B Nightingal Hall.

Grading: Daily Homework (due on time, 4 late accepted)		10%
Problems of the Week (POWs)	(on time and typed)	20%
Portfolios (on time and typed)		20%
Tests		25%
Final		25%

Late Work: Four late home works are allowed. POWs and Portfolios are due on time. For every **day** they are late your grade will go a half step (B to a B- etc) **no matter what the reason**. If your printer isn't working you can e-mail me the work or hand in a disk. If you are sick, you can e-mail me your work and hand in attachments when you return.

Proficiency Requirement: Students passing this course with a C or better will satisfy the College of Arts and Sciences Category I mathematics requirement. Students who are seeking to satisfy this requirement but earn less than a C have two choices : 1) retake MTH 117 earn a C better, or 2) take MTH 115 and receive a C or better.

Finals: Our final is on **Dec 15 at 10:30 am**. No student will be given a request for a special final exam unless it is due to a registrar created conflict. If you miss the final you will be given a grade of zero on it as there will be no make-up given. Therefore, make your plans to go home for after this exam!

Note: It is your responsibility to be aware of any changes to this syllabus that are announced in class. If you have any concerns about the course that cannot be resolved with me, please see Prof. Oblas in 532 Nightengale, x4487. It is the University policy that no grade, including an incomplete, can be changed after one year. Exceptions must be authorized by the Academic Standing Committee.

Academic Honesty: Cheating will not be tolerated. All work submitted must be your own. If you get help from another individual on the POWs or portfolios, your write-up needs to be in your own words, and you must identify who you worked with. You will be randomly called on to explain your work, so if you get help, make sure you understand it. I will be monitoring the internet and any plagiarism will be cause for me to file a complaint against you.

During exams, cell phones must be put away and you cannot share calculators.

Please refer to the University's policies on cheating and related disciplinary actions that are detailed in your Student Handbook. Incidents of cheating will be reported to the Office of Judicial Affairs, which can lead to suspension or expulsion from the University.

CLASSWORK	**HOMEWORK** **(due next class unless specified)**
Day 1 The Unit Question p. 2-5	a) Initial Experiment p. 5 b) POW Due Day 4 Moving Pieces p. 113-114
Day 2 Time is Relative p. 6 Your Pulse p. 6	Flipping Coins p.7
Day 3 What's Rare p. 8-9 Normal Distribution and Standard Deviation (of Pulse data) by hand p.10-13	Penny Weight p. 14
Day 4 Standard Deviation using TI 83 (of Pulse and Timing) p.15	a) Deviation p. 16 b) Use Standard Deviation on Penny Weight p. 14 c) POW Share and Share A-Like p.105-106 due Day 7
Day 5 The Standard Pendulum p.17 POW presentations	a) Conclusions about the Standard Pendulum p.18 b) More on Standard Deviation p.20
Day 6 Pendulum Variations p.19	More on Standard Deviations p.20
Day 7 Bird Houses p.21-23 Using the calculator to graph points and curves, using table and window Start Graphing Free-For –All p. 24-25	Graphs in Search of an Equation p.26
Day 8 Graphing Free-For-All summary POW presentations Using your Calculator to find the equation of best fit p. 29	Tables in Search of an Equation p.27 Graphing Summary p. 28
Day 9 The Period and the Length p.30 The Thirty Foot Prediction p.41	a) The Brake p. 31 b) Unit Portfolio p. 32 due Day 12
Day 10 Building the 30 foot Pendulum Review for test	
Day 11 Unit Test	

Day 12 Unit Question for Small World p. 34	POW The Farmer p.94 due day 17
Day 13 How Many People? p. 35	Eggs and Amoebas p. 36
Day 14 The Rescue p. 37	Doctor's Orders p.40
Day 15 On A Tangent p. 38-39	
Day 16 Exponential Slopes p. 41	The Derivative of x^2 p. 42
Day 17 Find that Base! P. 43 Logarithm Review p. 44	Natural Logarithms p. 45
Day 18 Generalized Exponential Slopes p. 46	Instantaneous Rate of Change p. 48
Day 19 California and Exponents p. 47	Unit Portfolio due Nov 1
Day 20 Return to Small World Isn't It	
Day 21 Review	
Day 22 Test	

Day 23 Pollster's Dilemma; Sampling Seniors p. 52-52	Pizza Combinations p. 54
Day 24 Finish Sampling Seniors; Ice Cream Combinations and Permutations p. 54-55	Combinations and Permutations in Sports p. 58
Day 25 Probability p. 59 Play Ball p. 60	Probability p. 61
Day 26 The Theory of the Three-Person Poll p. 62-63	Graphs of the Theory p. 64
Day 27 The Central Limit Theorem and Graphing Distributions; Normal Area p. 66-72	Middletown Musings p. 73
Day 28 A Plus for the Community p. 74 Mean and Standard Distribution for Probability Distributions p. 75-76	POW Analyzing Your Own Poll due Dec 6
Day 29 The Search is On! P. 77-78	Putting Your Formulas to Work Part II p. 80
Day 30 From Numbers to Proportions p. 81 Different p, different Û p. 82	Is Twice As Many Twice As Good p. 84
Day 31 The Worst Case Scenario p.83	Unit Portfolio due Dec. 8
Day 32 What Does It Mean p.85 Pollster's Dilemma Revisited p. 88	
Day 33 review for test	
Day 34 test	
Day 35 POW presentations	
Day 36 Review for final	