

## SYLLABUS FOR MTH U117- Sequence A spring 2005

### Instructors and Office Hours:

Professor Carla Oblas, 373- 2328, e-mail c.oblas@neu.edu, 102 Cahners Hall  
Office hours: Mon and Wed 1:30-2:30 and Thurs 3-4 or by appointment.

**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**. Students who have more than four absences will be required to withdraw. **There are no make up tests**. Do not miss a test!

**Cell Phones:** Keep them turned off!

**Help:** Besides my office hours, assistance is available at the Academic Assistance Center Sign-up for appointments in 102 Cahners Hall

<b>Grading:</b> 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 will not be accepted more than one class period late. Portfolios will not be accepted late.

**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 U117 earn a C or better, or 2) take MTHU115 and receive a C or better.

**Finals:** Our final is on April 20 at 3:30 pm. No student will be given a request for a special final exam unless it is due to a registrar created conflict.

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. King in 447 Lake, x5679. 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. 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. If you get help from another individual on the POWs or portfolios, your write-up needs to be in your own words. 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. Incidents of cheating will be reported to the Office of Judicial Affairs, which can lead to suspension or expulsion from the University.

<u>CLASSWORK</u>	<u>HOMEWORK</u> <u>(due next class unless specified)</u>
Jan 6 The Unit Question for Pit and the Pendulum p. 2-5 Time is Relative p. 6 Your Pulse p. 6 Start What's Rare p.8-9	Initial Experiment p. 5 Flipping Coins p.7 POW Are You Ambidextrous? p. 117 Due Jan. 20
Jan 10 Finish What's Rare p. 8-9 Normal Distribution and Standard Deviation (of Pulse data) by hand p.10-13 Standard Deviation using TI 83 (of Pulse and Timing) p.15	Penny Weight p. 14 Deviation p. 16
Jan 13 The Standard Pendulum p.17  Pendulum Variations p.19	Weight p. 14 Conclusions about the Standard Pendulum p.18
Jan 20 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	POW The Farmer p.94 due Feb 7 More on Standard Deviation p.20
Jan 24 Graphing Free-for-all finished Graphing Summary p. 28	Graphs in Search of Equations I and II p.26 and 27  The Brake! p. 31
Jan 27 The Period and the Length p.30 Review for test	Portfolio due Feb 3
Jan 31 Building the 30 foot Pendulum Unit test	

Feb 3 Unit Question for Small World How Many People? p 34-36	Eggs and Amoebas p.36
Feb 7 The Rescue p.37 On A Tangent p. 38-39	Doctor's Orders p. 40 POW Weights p. 119-120 due Feb 21
Feb 10 Exponential Slopes p. 41	The Derivative of $x^2$ p.42
Feb 14 Find that Base! p.43 Logarithm Review p.44	Natural Logarithms p.45
Feb 17 Generalized Exponential Slopes p.46 California and Exponents p.47	Instantaneous Rate of Change p.48 Unit Portfolio due Nov 1
Feb 21 Return to Small World Isn't It p.49 and Review Unit	
Feb 24 Test	

<p>March 7 Pollster's Dilemma; Sampling Seniors p.52-53</p>	<p>Pizza Combinations p.54          Throw Back the Little Ones p.55          POW How Many Will Get There. P. 95          Due March 14</p>
<p>March 10 Ice Cream Combinations and Permutations; p.56-57          Probability p.59          Play Ball p. 60</p>	<p>Combinations and Permutations in Sports p.58          Probability p. 61</p>
<p>March 14 The Theory of Three-Person Polls p. 62-63          The Central Limit Theorem p.66</p>	<p>Graphs of the Theory p. 64</p>
<p>March 17 Normal Distribution, Graphing Distributions, Normal Area 67-72          A Plus for the Community p.74          Mean and Standard Distributions for Prob. P. 75-76</p>	<p>Middletown Musings p. 73</p>
<p>March 21 The Search is On! P. 77-78          Putting Your Formulas to Work p.79</p>	<p>POW Let's Vote On It p.118 due Dec 6</p>
<p>March 24 From Numbers to Proportion p.80          The Worst Case Scenario p.81          P vs p hat p.82</p>	<p>Is Twice As Many Twice As Good? P.83</p>
<p>March 28          What Does It Mean? P.84          Pollster's Dilemma Revisited.p.87</p>	
<p>March 31          Review for test</p>	<p>Portfolio due Dec 8</p>
<p>April 4 Test</p>	
<p>April 7 Poll presentations</p>	
<p>April 11 Review for Final</p>	