**Lincoln University**

**Department of Mathematical Sciences**

**Master Course Syllabus**

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| --- | --- | --- | --- |
| **Course Title:** | **Math for Liberal Arts**  | **Course number:** | **MAT 106E** |
| **Credit Hours**  |  | **Prerequisite (s):** | **MAT 098 (C or better) or placement** |
| **Term:** |  | **Co-Requisite (s)** |  |
| **Course Method** |  | **Meeting day and Time:** |  |
| **Instructor:** |  | **Classroom/lab/Studio Location:** |  |
| **Office location:** |  | **e-mail:** |  |
| **Office Hours:** |  | **Phone Extension:** |  |

**COURSE DESCRIPTION:**

This course is an introduction to applications of mathematics in the modern world. It is designed to cultivate an appreciation of the mathematics used in daily life and to develop students' quantitative literacy. Topics include quantitative critical thinking and set theory, consumer mathematics, probability and statistics.

**REQUIRED TEXT:**

* Angle, Allen; Abbott, Christine & Runde, Dennis. ***Survey of Mathematics with Applications***, 9th Edition, Pearson, 2012
* **ISBN-10:** 0321759664

**ISBN-13:** 978-0321759665

**REQUIRED MATERIALS:**

A calculator with exponents and factorials is required, for example TI 30Xa.

**Assessment Criteria & Alignment**

|  |  |  |  |
| --- | --- | --- | --- |
| CSLO | PSLOs | ILOs | Direct and Indirect Assessment Methods |
| CSLO\_1 | N/A | ILO\_7 | Homework, Tests, & Course Project  |
| CSLO\_2 | N/A | ILO\_7 | Homework, Tests, & Course Project  |
| CSLO\_3 | N/A | ILO\_7 | Homework, Tests, & Course Project  |
| CSLO\_4 | N/A | ILO\_7 | Homework, Tests, & Course Project  |

**Course Student Learning Outcomes (CSLO):**

Upon successful completion of this course the student will:

CSLO\_1- Learn the basic concepts of algebra and apply them in various problem-solving strategies.

CSLO\_2- Apply an understanding of percent and interest theory to solve problems involving consumer finance.

CSLO\_3- Understand the concept of probability and it’s application in finding odds.

CSLO\_4- Describe various measures and concepts of statistics and probability and apply them to analyze data and solve problems.

**Program Student Learning Outcomes (PSLO):** N / A

**Institutional Learning Outcomes (ILO):**

ILO\_7: Scientific & Quantitative reasoning

Financial literacy represents ideas, concepts, knowledge and skills that enable students to become wise and knowledgeable consumers, savers, investors, users of credit, money managers, and citizens of a global workforce and society. Quantitative Literacy (QL) represents the ability to reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations. Students will implement and apply financial decision-making skills to become knowledgeable consumers, savers, investors, users of credit, money managers, and citizens. Student will be able to create sophisticated arguments supported by quantitative evidence and can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate).

**Calculation of Final Grades**:

|  |  |
| --- | --- |
|   Homework  | 10%  |
|  Participation\* | 10% |
|  Tests (4 unit tests x 15% each) | 60%  |
|   Final (10% Cumulative final) | 20%  |

\*Participation: As designated by the individual instructor, these may include class attendance, quizzes, and/or other announced assignments.

**GRADING SCALE:**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |
| GPA Points | 4.0 | 3.7 | 3.3 | 3.0 | 2.7 | 2.3 | 2.0 | 1.7 | 1.3 | 1.0 | 0.0 |
| % | 100-93 | 92.9-90 | 89.9-88 | 87.9-82 | 81.9-80 | 79.9-78 | 77.9-72 | 71.9-70 | 69.9-67 | 66.9-60.1 | 60-0 |

**SCHEDULE OF LEARNING topics covered**

|  |
| --- |
| **Class Meets:** **•ASSIGNMENT SELECTION & SCHEDULE MAY BE SUBJECT TO CHANGE•** |
| **Week 01:** | **Unit 1- Chapter 6: Algebra, Graphs, and Functions**(Topics: 6.1 Order of Operations, 6.2 Linear Equations in One Variable, 6.3 Formulas, 6.4 Applications of Linear Equations In One Variable, 6.5 Variation, 6.7 Graphing Linear Equations) |
| **Week 02:** |
| **Week 03:** | **Unit 2 – Problem solving**(Handouts prepared by the department): Problem solving: Polya’s four step method for problem solving, language of sets, area and volume problems involving linear equations, magic squares and Sudoku puzzles, percent. |
| **Week 04:** |
| **Week 05:** | **Review and Test 1** |
| **Week 06:** | **Unit 3. Consumer Mathematics**(Topics: 11.1 Percent, 11.2 Personal Loans and Simple Interest, 11.3 Compound Interest, 11.4 Installment Buying, 11.5 Buying A House With A Mortgage, 11.6 Ordinary Annuities, Sinking Funds, and Retirement Investments). |
| **Week 07:** |
| **Week 08:****Midterm** | **Review and test 2** |
| **Week 09:** | **Unit 4 Probability**(Topics: 12.1 The Nature of Probability, 12.2 Theoretical Probability, 12.3 Odds, 12.4 Expected Value, 12.5 Tree Diagrams, 12.6 OR and AND Problems, 12.7 Conditional Probability, 12.8 The Counting Principle and Permutations, 12.9 Combinations, 12.10 Solving Probability Problems By Using Combinations, 12.11 Binomial Probability Formula). |
| **Week 10:** |
| **Week 11:** | **Review and Test 3** |
| **Week 12:** | **Unit 5 Statistics**(Topics: 13.1 Sampling Techniques, 13.2 The Misuses of Statistics, 13.3 Frequency Distributions and Statistical Graphs, 13.4 Measures of Central Tendency, 13.5 Measures of Dispersion, 13.6 The Normal Curve, 13.7 Linear Correlation and Regression). |
| **Week 13:** |
| **Week 14:** | **Test 4, review for final.** |
| **Week 15:** | **Final** |

**Unit 6** (Optional) (Chapter 8): The Metric System, 8.1 Basic Terms and Conversions Within the Metric System, 8.2 Length, Area, and Volume, 8.3 Mass and Temperature, 8.4 Dimensional Analysis and Conversions To and From the Metric System.

#### **University ATTENDANCE POLICY:**

Lincoln University uses the class method of teaching, which assumes that each student has something to contribute and something to gain by attending class. It further assumes that there is much more instruction absorbed in the classroom than can be tested on examinations. Therefore, students are expected to attend all regularly scheduled class meetings and should exhibit good faith in this regard.

<http://www.lincoln.edu/registrar/2014Catalog.pdf>

**STUDENTS WITH DISABILITIES STATEMENT:**

Lincoln University is committed to non-discrimination of students with disabilities and therefore ensures that they have equal access to higher education, programs, activities, and services in order to achieve full participation and integration into the University.  In keeping with the philosophies of the mission and vision of the University, the Office of Student Support Services, through the Services for Students with Disabilities (SSD) Program, provides an array of support services and reasonable accommodations for students with special needs and/or disabilities as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990.  The Services for Students with Disabilities Program seeks to promote awareness and a campus environment in which accommodating students with special needs and/or disabilities is natural extension of the University’s goal.

Any student with a documented disability should contact the Office of Student Support Services.

<http://www.lincoln.edu/studentservices/index.html>

**UNIVERSITY ACADEMIC INTEGRITY STATEMENT:**

Students are responsible for proper conduct and integrity in all of their scholastic work. They must follow a professor's instructions when completing tests, homework, and laboratory reports, and must ask for clarification if the instructions are not clear. In general, students should not give or receive aid when taking exams, or exceed the time limitations specified by the professor. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Honesty in the classroom and in the preparation of papers is therefore expected of all students. Each student has the responsibility to submit work that is uniquely his or her own. All of this work must be done in accordance with established principles of academic integrity.

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**POLICY ON ELECTRONIC DEVICES IN CLASSROOM:**

Electronic devices (cell phones, tablets, laptops, etc.) may not be used in class except for educational purposes (e.g. note taking, recording assignments, etc.). Students who violate this policy will receive a verbal warning for the first infraction and additional violations may result in the student being asked to leave class. Use of these devices during exams will be considered as academic dishonesty and will be subject to the sanctions described in the previous section.

**Assessment Methods (Tools) Direct & Indirect:**

**Homework and projects:** Homework Problems will be assigned on material covered in class and must be completed by the scheduled due dates. Projects may be assigned.

**Unit Tests:**

There will be four one hour in-class unit exams and 2 hours final. Calculators are required during exams but phones or other electronic devices are not allowed. All work (formulas used, etc.) must be shown on the test paper. Any student requesting special testing conditions due to disability must provide documentation at the beginning of the semester and make any needed arrangements before the exam.

**Make-Up Exams:**
Make-up exams will only be allowed with *official documentation* of an unavoidable absence and the student must have notified the instructor either beforehand or within 24 hours of the exam and scheduled the make-up ASAP.

**Resources:**

Students are also encouraged to make regular visits during office hours, to meet in study groups, and to use the Learning Resource Center Math Lab and/or Math tutors.