

Mathematics 105
Quantitative Reasoning-QR
Syllabus
Fall Semester 2018

Course Topics: Math 105 is a 3 credit course. Students will use mathematical modeling to solve practical problems with applications to management science, social choice, and personal finance. Math 105 satisfies the mathematics component of the quantitative reasoning general education requirement.

Required Textbook: Topics in Contemporary Mathematics, 6th ed., by Wiley Williams.

Course Objectives: Students who complete this course will be expected to:

1. use elementary algebra to solve problems involving interest, periodic payments, linear programming, voting theory, and apportionment;
2. develop critical thinking skills by identifying questions, developing models, and drawing conclusions related to the course topics;
3. demonstrate the ability to judge reasonableness of solutions to problems.

Course Requirements and Grades: Students are required to attend all classes. Performance in the class will be determined by homework, quizzes, and exams. All due dates for homework will be announced in class and posted on Blackboard. Quizzes will be given periodically throughout the semester. All quiz dates will be posted in advance on Blackboard. There will be four exams worth 100 points each. There is a total of 600 points available throughout the semester distributed as follows:

| Homework and Quizzes | Exam 1 | Exam 2 | Exam 3 | Exam 4 |
|----------------------|------------|------------|------------|------------|
| 200 points | 100 points | 100 points | 100 points | 100 points |

Final letter grades will be assigned as follows:

| | | |
|------------|-----------|------------|
| A+ 588–600 | A 552–587 | A- 540–551 |
| B+ 528–539 | B 492–527 | B- 480–491 |
| C+ 468–479 | C 432–467 | C- 420–431 |
| D 360–419 | | F 0–359 |

Cardinal Core and Learning Outcomes: This course fulfills the quantitative reasoning component of the Cardinal Core program. Competency in each of five learning outcomes will be assessed through performance on homework, quizzes, and exams.

Outcome 1: Interpret information presented in mathematical and/or statistical forms.

Assessment: Students will be required to extract meaningful financial information from amortization tables.

Outcome 2: Illustrate and communicate mathematical and/or statistical information symbolically, visually, and/or numerically.

Assessment: Students will be required to present the feasible region for a two-variable linear programming problem.

Outcome 3: Determine when computations are needed and execute the appropriate computations.

Assessment: Students will be required to apply the correct formulas to determine election winners according to several voting methods and compute apportionments according to several apportionment methods.

Outcome 4: Apply an appropriate model to the problem to be solved.

Assessment: Students will be required to apply models of compound interest to solve problems concerning financial instruments including investments, structured loans, and annuities.

Outcome 5: Make inferences, evaluate assumptions, and assess limitations in estimation, modeling, and/or statistical analyses.

Assessment: Students will be required to identify paradoxes and nonintuitive behaviors which may occur with certain apportionment and voting methods.

Important Dates: Monday, August 20: First day of class
Friday, August 24: Last day to drop/add
Monday, September 3: Labor Day, no class
Friday, September 14: Exam 1
Monday, October 8: Fall break, no class
Friday, October 12: Exam 2
Friday, October 19: Last day to withdraw
Friday, November 9: Exam 3
Wednesday, November 21: Thanksgiving break, no class
Friday, November 23: Thanksgiving break, no class
Monday, December 3: Last day of class
Monday, December 10: Final exam, 11:30am–2:00pm

Course Schedule: The following schedule is a **tentative** guideline for the pace of this class and the material that will be covered.

| Week | Sections |
|------|------------------|
| 1 | 1.1, 1.2 |
| 2 | 1.3, 1.4 |
| 3 | 1.5, 1.6 |
| 4 | 1.7, 1.8, Exam 1 |
| 5 | 2.1, 2.2 |
| 6 | 2.3, 2.4 |
| 7 | 2.5, 2.6 |
| 8 | 2.7, Exam 2 |
| 9 | 3.1 |
| 10 | 3.2 |
| 11 | 3.3 |
| 12 | Review, Exam 3 |
| 13 | 4.1, 4.2 |
| 14 | 4.3 |
| 15 | 4.4, 4.5 |
| 16 | 4.6 |

Title IX/Clery Act Notification: Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain **confidential** support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to **University faculty or instructors** of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is **not confidential** under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide (<http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure>).

Updated title of course on 7/20/18 by T. Riedel