

Math 104 – Quantitative Reasoning and Informed Citizenship

Spring 2015

Instructor – Dr. Michael Fraboni

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Office hours: Mon/Wed: 1-2pm, Thu: 9:30-11am

Textbook – We will use *Quantitative Reasoning: Tools for Today's Informed Citizen* by A. Sevilla and K. Somers. Plan on bringing the text with you to class every day.

Course Topics – The course focuses on quantitative reasoning skills and learning to interpret and critically assess numerical arguments, with an emphasis on issues relevant for informed and effective citizenship.

Specific topics include: organizing information pictorially using charts and graphs; bivariate data; graphs of functions; multiple variable functions; proportional, linear, and piecewise linear functions; modeling involving linear and exponential functions; logarithmic functions and scientific notation; indexes and ratings systems; inductive reasoning; deductive reasoning; decision making; apportionments; measures of center and five-number summary; standard deviation, z-scores, and normal distribution; introduction to probability; conditional probability and tables; sampling and surveys; and general problem-solving techniques.

Course Goals – In this course we will develop and increase students' ability to

- formulate, analyze, and solve real-world problems that involve quantitative information
- reason quantitatively and make and evaluate numerical arguments
- explain and interpret, orally and in writing, results of quantitative analysis
- Use technology and internet resources for quantitative analysis

Classes – The class will be a mixture of short lectures, questions and discussion, and classroom activities that you will investigate. The majority of class time will be spent with you working on activities in your text, so active participation during class meetings is expected from each of you. We will use Microsoft Excel for most activities. Some activities will involve students working together in pairs or small groups and some activities will involve individual work.

Readings and uncollected homework – Daily reading and problem assignments from the text will be given; you are expected to come to class prepared to explain problem solutions and to ask questions on anything you may have found unclear. You may be randomly called on to answer questions on the readings for that day.

Activities and projects – The reading assignments are background materials for the in-class activities. All verbal responses are to be completed using full sentences that clearly answer the question. Please proof-read all written explanations to make sure they say what you want them to say.

Students are encouraged to study together but each of you must write your own hand-in work individually unless otherwise instructed in writing. The Academic Honesty Policy guidelines for Mathematics courses, which are included at the end of this document, are to be followed on all assignments.

Some activities will be collected and graded, others will not. In either case you should save your work on each activity in an organized way either in a binder or in files on your computer.

Participation – Class participation will be one component of your grade for this course. At a minimum this means attending all classes prepared to work on the day's activity. In addition I will expect students to remain focused throughout the entire class on the activity at hand and participate in class discussions of material as appropriate.

Attendance – Class attendance is required. Your understanding of the material in this course will be assessed during every class meeting. If you are not in class, you cannot show mastery of the day's work during that class. Because we will be working with Excel in class and introducing new skills each day, it is very important for you to be there and it will be difficult to catch up once you have fallen behind. You are responsible for all work covered in class and all assignments, even if you must be absent from class. If you must miss more than one class due to illness or emergency, you should notify the instructor.

Quizzes and Exams – There will be weekly quizzes based on the readings and homework problems. There will be two in-class exams, and a cumulative final exam. No make-up quizzes will be given; make-up exams will be given only under extreme circumstances and with appropriate documentation.

The final exam for this class is scheduled for **Tuesday, May 5 at 1:30 pm**

Grading – Grades will be computed based on the weights below. Tentative dates for exams are listed below, as well.

- Class participation (10%)
- Weekly quizzes and graded homework (20% total)
- In-class Exam 1 (15%) – Wednesday Feb 11
- In-class Exam 2 (15%) – Friday Mar 6
- In-class Exam 3 (15%) – Wednesday Apr 8
- Cumulative final exam (25%) – Tuesday, May 5 at 1:30

Technology – You will use the classroom computers or your own laptop and Microsoft Excel during many class periods. Instructions will be provided as needed, so no prior knowledge of Excel is assumed.

You will need a basic calculator to use when solving homework problems, and to use during quizzes and exams. You will not have access to Excel or the computer during quizzes and exams, and you may not use a calculator on a cell phone during quizzes and exams.

Disclaimers – This syllabus is subject to change through the semester. Any updates to the syllabus will be announced in class. The instructor reserves the right to apply qualitative judgment in determining final grades for the course.

Learning Disability Accommodations – Students who wish to request accommodations in this class for a disability must contact Ms. Elaine Mara, assistant director of academic support services for academic and disability support, at the lower level of Monocacy Hall, or by calling 610-861-1401. Accommodations cannot be provided until authorization is received from the Academic Support Center.