Math 104 – Quantitative Reasoning and Informed Citizenship
Fall 2013

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Textbook – We will use *Quantitative Reasoning: Tools for Today's Informed Citizen* by A. Sevilla and K. Somers.

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.

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.

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. Your work on each activity investigated in class will normally be collected during the next class, to give you a chance to complete the activity outside class if you did not finish it during the previous class period. You will be asked to turn in the whole activity, with each part completed, accompanied by any printed graphs and explanations as instructed. 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. These activities will be graded and returned to you in a timely manner. In some cases the whole activity will be graded; in other cases, portions of the activity will be graded. In the interest of fairness, late activities will not be accepted.

There will be some activities that could be called projects. For these activities, you will be able to choose a context that might be of special interest to you. You will be given details about these assignments in class.

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.

Quizzes and Exams – There will be three short quizzes, two in-class exams, and a cumulative final exam. The quizzes will be given in class on **Wednesday, September 18**; **Wednesday, October 23**; and **Wednesday, November 20**. You will have half hour to complete each quiz. The two exams will be given on **Wednesday, October 2** and **Wednesday, November 6**. You will have the whole class period to work on the exams. Please mark the dates of all exams and quizzes on your calendar. 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, December 10 at 1:30 p.m.**

Grading – Grades will be computed based on the weights below. Tentative dates for exams are listed below, as well.
- Class participation (15%)
- Graded activities, projects and other homework (35%)
- Three quizzes (10% total)
- Two in-class exams (20% total)
- Cumulative final exam (20%)

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

There are sufficient computers available on campus that you do not need access to your own computer to complete the work of the course.

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 should contact the assistant director of Academic and Disability Support in the Academic Support Center, Monocacy Hall, lower level (extension 1510). Accommodations cannot be provided until authorization is received from the Academic Support Center.

Mathematics Department Academic Honesty Policy – The Mathematics Department supports and is governed by the Academic Honesty Policy of Moravian College as stated in the Moravian College Student Handbook. The following statements will help clarify the policies of members of the Mathematics Department faculty.

In all at-home assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you must acknowledge the source. You also may not use a solution manual or the help (orally or in written form) of any individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources, you will be violating the Academic Honesty Policy of Moravian College. You may work with your fellow students on homework which is not to be graded. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and un-graded.

All in-class or take-home tests and quizzes are to be completed by you alone without the aid of books, study sheets, or formula sheets unless specifically allowed by your instructor for a particular test.