

# Quantitative Reasoning (MAT 103-5)

## Syllabus Spring 2011

**Instructor:** Raymond Nazario

**Office Hours:** By appointment only

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**Textbook:** Bennett, J.; Briggs, W.; Triola, M. (2009). *Statistical Reasoning for Everyday Life* (3<sup>rd</sup> ed.). Boston, MA: Pearson. ISBN: 0321286723

### Rationale for Q requirement

Quantitative methods have become increasingly important in the natural and social sciences, business, government, and in many other activities that directly affect our lives. Furthermore, with advent of fast computers with huge storage capabilities, it has become possible to collect, process, and disseminate large amounts of data. Playing an active role in the decision-making that shapes our society requires us to be able to interpret, analyze, and draw conclusions from the standard representations of data.

### Course Content

This is an introductory course in quantitative reasoning. Students will use statistics to describe and analyze real data. Topics will include:

1. reading and critically analyzing articles which include statistical information
2. the description of distributions, using charts and measures of center and spread
3. correlation
4. random sampling, design of experiments, significance, normal distributions and the Central Limit Theorem
5. use of confidence intervals in inference.

### Learning Objectives

1. Become better equipped to evaluate arguments which use statistics and to discriminate between the sound use and the all-too-often abuse of statistics in today's society.
2. Become familiar with the challenges and potential pitfalls of sampling, surveys, observational studies, and experiments.
3. Be able to draw, describe, and interpret various graphical displays of data.
4. Become familiar with some of the statistical tools and methodology, including the use of *Microsoft Excel*, for organizing, describing, displaying, analyzing, and interpreting quantitative data.
5. Be able to generate and interpret basic statistics that summarize the various features of a distribution.
6. Understand the difference between correlation and causation.
7. Be able to draw conclusions about a population from a random sample, and understand the concepts of margin of error and confidence.

## Expectations

1. Each student is responsible for turning assigned work in on time. I will not accept late work. If you cannot make it to class, you need to find some way to get your work to me BEFORE class.
2. All students are expected to participate in class. Participation includes questions, discussion and group work during class. I have found that active participation increases retention and comprehension!
3. Students are expected to get help when they need it. There will be times when you may not understand something. Talk to me or to your classmates.
4. Students are expected to come to class ready and eager to learn.
5. Each student in turn should expect the following from me. I will come to every class prepared to teach you in a way that helps you understand the ideas under consideration. I will be excited about the topics we discuss. I will be there whenever possible to help you understand the material.

## Study Suggestions

I suggest you read the text slowly and carefully.

Find a person or persons to study with. This person should be someone at your same ability level so you can work through hard ideas together, rather than having one person tutoring the other.

If you get stuck or start feeling lost, please come see me.

Schedule enough time to do a good job on homework.

\*\*\*\* I do not have an attendance policy. However, we will work on in-class activities during most class meetings. These activities will be collected during class and graded on completeness AND correctness. It is very important that you attend every class so that you do not miss material. If you are unable to attend class, the activities will be posted on Blackboard at the end of the day. Since they are an in-class activity, **you will not be able to turn them in for credit**, but I do suggest you look at them so that if you have questions, you can get some help.

## Assessment

### 1. Assignments : 5%

Notice in the expectations that I do not accept late work. If you cannot make it to class, then you should give someone your work to turn in, or you should e-mail it to me. Your homework will be graded both on completeness and correctness. You will receive a ✓+, or 10 out of 10; a ✓ which is 8 out of 10; or a ✓- which is 5 out of 10.

### 2. Focus Activities : 5%

At the end of each chapter in the book, there are activities that deal with real world problems. At some time during the semester, you will need to complete 3 of the 18 possible activities. I will require that you turn

the activity in on or before the day of the exam for that chapter. You can also complete 3 of these activities at any time for extra credit.

### 3. Projects : 5%

There will be small projects assigned throughout the semester dealing with the topics being covered at the time of the assignment. These projects will serve as review and are a good way to boost your grade.

### 4. Three Tests : 60%

Each test will be an in-class test worth 20%. If you expect to have some valid excuse for missing an exam or quiz, then you are required to submit it **beforehand** if at all possible. Feeling under the weather, oversleeping, wanting to catch an early flight home, etc are **NOT** good excuses and are unfair to the rest of us involved in the course. Only students with excused absences will be allowed make-ups for exams. If you miss a scheduled make-up exam, you will get a zero for the exam.

### 5. Final Exam : 25%

The final exam will be cumulative. Your final exam is scheduled for May 2, 2011.

## Grading Scale

**A** [94, 100], **A-** [90, 94),

**B+** [87, 90), **B** [82, 87), **B-** [79, 82),

**C+** [76, 79), **C** [70, 76), **C-** [65, 70),

**D+** [63, 65), **D** [55, 63), **D-**[54, 55)

Note : This syllabus can be changed at any time at the instructor's discretion.

## Students With Disabilities

Rollins College is committed to equal access and does not discriminate unlawfully against persons with disabilities in its policies, procedures, programs or employment processes. The College recognizes its obligations under the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 to provide an environment that does not discriminate against persons with disabilities.

If you are a person with a disability on this campus and anticipate needing any type of academic accommodations in order to participate in your classes, please make timely arrangements by disclosing this disability in writing to Gail Ridgeway, Disability Services Office (box 2613)- Thomas P. Johnson Student Resource Center, 1000 Holt Ave. Winter Park, FL 32789 or call 407-646-2354 for an appointment.

## Academic Honor Code

### *THE ACADEMIC HONOR CODE*

Membership in the student body of Rollins College carries with it an obligation, and requires a commitment, to act with honor in all things. Because academic integrity is fundamental to the pursuit of knowledge and truth and is the heart of the academic life of Rollins College, it is the responsibility of all members of the College community to practice it and to report apparent violations.

The following pledge is a binding commitment by the students of Rollins College:

The development of the virtues of Honor and Integrity are integral to a Rollins College education and to membership in the Rollins College community. Therefore, I, a student of Rollins College, pledge to show my commitment to these virtues by abstaining from any lying, cheating, or plagiarism in my academic endeavors and by behaving responsibly, respectfully and honorably in my social life and in my relationships with others.

This pledge is reinforced every time a student submits work for academic credit as his/her own. Students shall add to all tests and projects the following handwritten abbreviated pledge followed by their signature:

**"On my honor, I have not given, nor received, nor witnessed any unauthorized assistance on this work."**

Material submitted electronically should contain the pledge; submission implies signing the pledge.