**CCBC Essex School of Mathematics and Science**

MATH 133 Concepts of Mathematics for Teachers III **Section:E70**

**CLASSROOM LOCATION: J203 Tuesday, Wednesday, Thursday 1pm – 3:35pm**

## Instructor: Anthony Calise Semester: Summer 2010

**Phone:**  **Email:** acalise2@bcps.org

**Office:** **WEBSITE: www.mrcalise.weebly.com**

**Office hours:**. (No appointments needed)

Tuesdays: noon - 12:40pm

Wednesdays: noon – 12:40pm

Thursdays: noon – 12:40pm

Or contact me to set an appointment if none of those times are possible

**Course Pre-requisites:** (ENGL 052 or ESOL 052 or LVE 2) and (RDNG 052 or LVR 2), Algebra I and II and a satisfactory score on the MATH placement test or satisfactory completion of (MATH 083 or Math 101 or LVM 3), or consent of the instructor.

## COURSE DESCRIPTION

Students will develop an understanding of statistical methodology and use of critical judgment in analyzing data sets. Also, students will develop the concept of a function on an intuitive and conceptual basis appropriate for elementary education majors. Topics include descriptive statistics, introduction to probability, normal distributions, regression, correlation, curve fitting, and functions including linear, quadratic, and exponential. Computer applications are used. This is not a “methods in teaching” course.

**REQUIREMENTS**

Quizzes: Best 4 of 5 for a total of 20 %

Projects: Two for total of 15%

Exams: Four for 10% each

Final exam: 25

There is a chance to earn up to an additional 6% which can be earned by performance on the non-quiz grade homework’s, class participation, and class attendance. This can be looked at as a chance to show proficiency on the material beyond the quizzes, exams, and projects.

PROJECTS: Two of the projects will involve a mixture of a write up, a 5 – 10 minute presentation of an activity to the class, a computer activity and using applications of the course material in real life situations.

QUIZZES: There will be 5 quizzes or graded homework’s throughout the semester.

The in class quizzes will each be short (10-15 minutes), worth 10 points, on material covered recently, possibly open book and or notes, and usually not announced in advance. The lowest two quizzes will be dropped. Quizzes will often be at the end of class but could be given at any time.

HOMEWORK: There will be homework assigned each class usually due for the next class. The homework’s will usually consist of a few “self check” problems either from the text or given on the website. The self check problems from the text have answers given in the textbook’s appendix and will often be warm up questions or questions not requiring much explanation. The self check problems given at the website will have solutions with comments. The other questions will be denoted as being for hand in. These will usually be submitted and returned with corrections and solutions the next class. The HW’s will be marked with a check+, check, or check– but will not be graded more formally than that. Sometimes the hand in problems will be presented on the board the day they are due instead of being submitted. It is also possible that instead of being gone over individually there will be questions and answers for them. Unless I say otherwise collaboration is allowed on the homework’s but say on which problems and with whom you worked with or got assistance from.

EXAMS: Will be on material covered in the previous few weeks. The exact

dates will be given at least one week in advance. These exams will not

take an entire class period and new material will be covered after the exam.

FINAL EXAM: the final exam will be comprehensive. The exact date will be given to you once determined.

**Grading policy**

Grade Scale:

A – at least 90.0%

B – at least 80.0%

C – at least 70.0%

D – at least 60.0%

F – below 60.0%

**Attendance policy FOR THIS COURSE:** You are expected to attend all scheduled classes. Should you miss a class, you are responsible for all work missed.

**TEXT(S):**

*Intro Stats* by Deveaux, Vellerman and Bock 3rd edition. Published by Pearson Addison- Wesley

**Special procedures** No use of cell phones or other electronic communication devices is allowed during class time. If you have special circumstances see me individually. If you need to borrow a calculator during class let me know.

***You should bring the text book every class***.

**Overall Course Objectives**

Upon successful completion of this course students will be able to:

1. Demonstrate the relationship of statistics to the modern world. (I,IV,V,1,2,3,6,7)
2. Apply technology to statistical problems.(IV,4)
3. Assess statistical reasoning in everyday life.(I,1,3,6,7)
4. Describe data with appropriate measures of central tendency and variability.(I, IV,V,1,3,4,6,7)
5. Evaluate statistical graphs.(I,IV,V,1,3,4,6,7)
6. Analyze linear regression and correlation problems (I,IV,V,1,3,4,5,6,7)
7. Examine statistical concepts as they apply to diverse populations. (III, V)
8. Compute binomial probabilities (I,IV,1,4,6,7)
9. Compute normal distribution probabilities (I,IV,1,4,6,7)
10. Apply the fundamentals of probability and the addition and multiplication rules to introductory problems.(I,IV,1,3,4,6,7)
11. Produce and compare graphs of linear functions. (I, IV, 1, 4)
12. Produce and compare graphs of quadratic functions. (I, IV, 1, 4)

13. Perform operations with functions. (I, IV, 1,3, 4)

1. Produce and compare graphs of polynomial functions. (I, IV, 1, 4)
2. Produce and compare graphs of exponential and logarithmic functions. (I, IV, 1, 4)
3. Identify the zeros of polynomial functions; apply the Fundamental Theorem of Algebra. (I, IV, 1, 3, 4, 5)
4. Solve inequalities in one and two variables. (I, IV, 1, 4)
5. Solve absolute value inequalities in one variable. (I, IV, 1, 4)
6. Construct a solution to real world problems using problem-solving methods individually and in groups. (II, III, V, VI, 2, 3, 7)
7. Examine the mathematical contributions made by people from diverse cultures throughout history.(V,5)

20. Articulate a solution to mathematical problems. (II, 2)

**Major Topics**

**I. Introduction**

1. Introductory definitions
2. Use of statistics in everyday life

**II. Descriptive Statistics**

1. Graphs
2. Measures of Central Tendency
3. Measures of Variability

**III. Probability**

1. Fundamentals and basic concepts
2. Addition rule
3. Multiplication rule

**IV. Binomial Distribution**

1. Use and interpret binomial probabilities
2. Mean and standard deviation of a binomial random variable

**V. Normal Distribution**

1. Characteristics of the normal distribution
2. Use and interpret normal probabilities
3. The Central Limit Theorem

**VI. Regression and correlation**

1. Scatter plot
2. Use and interpret the correlation coefficient
3. Use and interpret the linear regression line

**VII. Linear Functions**

1. Slopes and Equations of a Line (Review)

B. Function Notation (Review)

1. Domain and Range

D. Absolute value and Piecewise-defined Functions

**VIII. Inequalities in One and Two Variables**

1. Inequalities in One Variable (Review)
2. Compound Inequalities in One Variable
3. Absolute Value Equations and Inequalities in One Variable
4. Linear Inequalities in Two Variables
5. Systems of Linear Inequalities in Two Variables

**IX. Quadratic Functions**

1. Quadratic Functions, Function Notation, and Their Zeros (Review)
2. Mathematical Models
3. Roots of Quadratic Equations

**X. Functions**

1. Operations on Functions
2. Inverse Functions; Square Root Function

**XI. Exponential and Logarithmic Functions**

1. Exponential Functions

B. Applications of Exponential Functions

1. Logarithmic Functions
2. Modeling with Exponential and Logarithmic Functions

**XII. Polynomial Functions**

A. Power Functions

B. Polynomial Functions and Their Zeros

C. Fundamental Theorem of Algebra

**ATTENDANCE POLICY**

Attendance at each class and lab is essential. Please be on time. Students with a legitimate problem about attendance , should discuss the situation with their instructor.

**COURSE REPEAT POLICY**

Policy on Repeated Courses, page 194 of the 2004-2006 CCBC catalog states, “Students may repeat a course only once without permission. When a student repeats a course, only the higher grade is computed into the Quality Point Average (QPA). All grades will remain on the student’s transcript. Before a student is permitted to register for the course for a third time, the student must have the permission of the academic dean responsible for the course. Before a student may repeat a developmental course that he or she has failed twice, the student’s record must be reviewed by a support team which will make recommendations regarding enrollment.” Please note: The instructor does not have the authority to grant permission to register for a third attempt at the course.

# Disabled Students

In accordance with the Americans with Disabilities Act, CCBC is committed to providing an environment that is conducive to learning for all students. Any student who is disabled and requires special accommodation should contact the appropriate campus as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Campus:** | **Office:** | **Room:** | **Phone:** |
| **Catonsville** | Office of Disabilities Support **Services** | **K-200** | **410-455-4382** |
| **Dundalk** | Office of Career and Life Planning | **A-100** | **410-285-9774** |
| **Essex** | Office of Special Services | **A-210** | **410-780-6878** |

Code of Academic Integrity

For the College to make its maximum contribution as an institution of high learning, the entire college community must uphold high standards of integrity, honesty, and ethical behavior. In seeking the truth, in learning to think critically, and in preparing for a life of constructive service, honesty is imperative. Each student has a responsibility to submit work that is uniquely his or her own, or to provide clear and complete acknowledgement of the use of work attributable to others. To these ends, the following actions are expected of students:

* Complete all work on exams without assistance.
* Follow the professor’s instructions when completing all class assignments.
* Ask for clarification when instructions are not clear.
* Report to the instructor any unauthorized information related to an exam.
* Provide proper credit when quoting or paraphrasing.
* Submit only one’s own work.

Students who do not accept responsibility for the integrity of their own work will experience sanctions, including a written reprimand, failure of the assignment, failure of the course, and/or dismissal from the program. For repeat and extreme offenses, the College reserves the right to suspend or expel students.

# Writing Policy

The College recognizes that clear, correct, and concise use of language is characteristic of an educated person. Therefore, whenever possible, faculty members in all disciplines should require written assignments in their courses in order to encourage effective writing by their students. Also, instructors should consider the quality of writing in determining a grade for a written assignment. Poor writing can be a sufficient cause for a failing grade on a paper and, in extreme cases, a failing grade in a course.

# Inclement Weather/Emergency Closing Policy

In the event that the college (or a specific campus) opens late due to weather-related or other emergency conditions, classes will commence at the announced opening time and resume the normal schedule thereafter for the remainder of the day. Faculty, students, and classified staff should report to wherever they would normally have been at the announced opening time. \*\*

Students and faculty engaged in field placement programs (such as internships, clinical placements, etc.) should discuss the handling of emergency situations at the beginning of the placement period. Both the requirements of the program and the safety of persons involved should be considered in planning a course of action in those cases where students are expected to report to off-campus locations.

\*\* For example, if you had a class that began at 9:35 and the college opened at 10:00 because of snow, you would report to your 9:35 class at 10:00.

When the college closes because of severe weather or emergency conditions, announcements of class cancellations are made on local radio and television stations and the college website ([www.ccbcmd.edu](http://www.ccbcmd.edu)). Closings and delays will also be recorded on the campus weather lines:

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| --- | --- |
| **Catonsville** | 410-455-4567 |
| **Dundalk** | 410-282-6700 |
| **Essex** | 410-780-6711 |

###### TUTORING SERVICES

Students are encouraged to seek help from their instructors whenever they encounter academic difficulty (either during scheduled office hours or by appointment). In addition, each campus offers free academic support services.  For more information, contact:

|  |  |  |  |
| --- | --- | --- | --- |
| **Campus:** | **Office:** | **Room:** | **Phone:** |
| **Catonsville** | **Tutoring Services** | **F-200** | **410-455-4420** |
| **Dundalk** | **Tutoring Services** | **CAR-530** | **410-285-9877** |
| **Essex** | **Student Success Center** | **A-307** | **410-780-6820** |

**CIVILITY AND COMMUNITY BUILDING EXPECTATION**S

Creating a Culture of CARE©

(Compassion, Appreciation, Respect, Empowerment)

As members of the CCBC community of learners, we are expected to act with respect, honesty, responsibility and accountability. Each of us is expected to be aware of the impact our behavior has on the community. CCBC wishes to each learner to commit to the following actions:

• Become an active and engaged learner

• Celebrate the richness of our diversity

• Respect the campus and its code of conduct

• Practice empathy and compassion

• Promote the empowerment of others

**MAJOR RELIGIOUS HOLIDAY POLICY**

Students not attending class because they are observing major religious holidays shall be given the opportunity, to the maximum extent possible, to make up, within a reasonable amount of time, any academic work or tests they miss. Arrangements between the student and the faculty member(s) for the student to make up missed assignments or tests **must be made in advance of the religious holiday, at the initiation of the student.**

STUDENT E-MAIL ACCOUNTS

CCBC has joined the ranks of the very few community colleges in Maryland who provide email accounts to all credit students. Each student who is registered in credit classes now has an email account and up to 5 Mb of storage in their mail box. This account will not be deleted even if the student graduates or leaves CCBC for any reason.

For information about the system and how students can determine their email address, go the CCBC Home Page and click on “Student Email”. From here students can find their email address, get to an on-line user manual and access instructions on how to forward the CCBC email to the system of choice (AOL, Comcast, Hot Mail, etc.)