

Northern Michigan University

Department of Mathematics/Computer Science

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# Syllabus

## CS255 COMPUTERS IN ELEMENTARY EDUCATION

### Winter 2002 Section 01

URL for course info: <http://Ellerbruch.nmu.edu/classes/CS255F02/CS255.html>

Seq #: 10604 section 01

12:00 noon - 12:50 pm M W R F Room NSF 1209

Prerequisite: C in MA 150 or equivalent

#### **Instructor Information:**

Instructor: L. W. Ellerbruch

Office: NSF 1109

Telephone: 227-1597

Office Hours: As posted by office door but will include:

11:00 - 11:50 am M W Th F

1:00 - 1:50 pm M W Th F

Other hours by arrangement.

#### **Text:**

No Text is required

#### **Basic Philosophy and content for the course:**

The course will be built around the rule of "four"; every topic should be presented visually, numerically, abstractly (algebraically) and have a strong emphasis on written communication. In-class work, homework, exams and quizzes, and projects will utilize all four components as much as is reasonably possible. Communication is important and individuals are encouraged to talk about computers and

assignments with other members of the class. Cheating is defined as turning in someone else's work as your own. It is not cheating to work with others. Sharing the learning and teaching is an important part of the course.

Technology will be an important component of classroom instruction and learning. Students will use computers. E-mail, mail groups, and the internet will be used extensively.

This course NOT computer programming. There is NO PROGRAMMING EXPERIENCE REQUIRED. If you have considerable programming experience, you may be in the wrong course, check with the instructor.

## **Time Commitment**

Computers inevitably involve a great deal of problem solving. The combination of problem solving, learning new languages, and developing new skills often takes a great deal of time. The rewards are commensurate with time and effort. The normal expectation for a programming course of this nature is that the student will spend a minimum of ten hours a week outside of class and some students will spend substantially more time. Students frequently report averaging fifteen to twenty hours a week outside of class.

## **Calculators and Technology:**

All students will acquire and use a university e-mail account. Information will be sent to the students by e-mail. Students will be expected to communicate with each other and the instructor by e-mail. A complete and up-to-date syllabus, list of assigned exercises, list of assignments, and other information related directly to the class will be available on a WWW page on the instructor's WWW server.

## **Calculator**

It is probably wise to bring a calculator to class or get the TI-83 emulator which can be installed on the laptops. All homework, in-class instruction, quizzes, and exams will assume the student has and can use a calculator. Test questions may involve numerical situations which would be difficult if not impossible to complete manually. The student is responsible for making the connection to the material, mathematical ideas, techniques, and technology being used in class.

A minimum of a scientific calculator is suggested for the course. It will be useful for homework, in-class exercises, quizzes and exams. It must have the capability of logs, exponents, trig functions, and it should have memory. You will find it important that the calculator also have factorial, permutations and combinations keys. You are responsible for learning how to use your specific calculator, although we will discuss the most common types. The calculator should work with negative exponents. A graphing calculator such as the Texas Instruments TI-85 is an extremely good calculator to consider if you can afford it and especially if you will be taking additional math classes where it will be required. A TI-83 emulator is available for the laptop.

## **Technology**

It is assumed students will use word processing, editors, and graphing programs on microcomputers to complete reports/projects/programs. Students will use e-mail, a WWW browser, mail groups, editors, and various software. Demonstration lessons will be provided for the Macintosh or laptop.

## **Assignments:**

In-class exercises and out-of-class exercises will be assigned on a regular basis. It is expected that students will complete all assigned exercises. Some homework sets may be collected. Some homework exercises may be marked. Some homework exercises may be used as quiz items.

Reading assignments will be made, and it is very important to complete them.

There will be in-class discussion and group work. Participation is expected.

Assignments will be made which will require writing. Reports will be submitted electronically. There will be projects which will be completed by groups with only one report for the group, projects which require group problem solving with individual reports, and projects which are independent. Students will be required to make their results/reports available on the World Wide Web.

You are responsible for any material assigned, even if it is not covered during class time. You will be tested on material from the class, from assignments and from other sources. You will be expected to form your own opinions which will be asked for on tests. Your opinion will be evaluated primarily on the justification or basis for the opinion even if the opinion agrees with the instructor's position.

Students will be responsible for instructional material placed on the WWW for them, or assigned to them.

## **Quality**

Students are expected to produce quality products. If a student meets the stated requirements for an assignment, but does it in a minimal fashion, the maximum grade for the product will be a "C". To earn a "B" or an "A" there must be reasonable quality in the work.

## **Collaboration**

It is expected and students are encouraged to work together in order to assist each others understanding. But, assignments turned in must be substantially produced and understood by the individual seeking credit. If there is any question about the production, performance, or understanding of a program, the instructor reserves the right to question an individual regarding the details of the program. Inability to explain the program or lack of understanding of the program will be considered evidence for no credit on the program. Direct evidence of turning in another individual's work as your own (plagiarism or theft) will result in an 'F' in the course.

## **Attendance:**

Attendance is required. Your participation grade will be affected by attendance (an exception may be made for those earning an "A" if prior arrangements are made and for selected excused university activities). Major exams may be made up only if the absence is excused prior to the absence. Daily work or quizzes may not be made up!

## **Grading:**

Exams

There will be exams and quizzes worth 200 - 500 points. There will be a comprehensive final which will be mandatory for all students with less than a "B" average. The final **may** be optional for those with a "B" or better. The quizzes, tests, and final may be of a non-standard format which might include a group component or an on computer component.

### Quizzes

Quizzes will usually be unannounced and will usually be of very short duration. There may be a quiz any day. Likely material for the quizzes will include short answer or essay questions, homework problems, or material emphasized in class.

### Points

Points are cumulative for all class activities. There will be about:

points	category
400 - 700	Exams: tests, quizzes, final
400 - 800	projects/programs
100 - 200	participation

### Letter Grades

Point equivalents for assignments receiving letter grades are as follows:

The following is the guaranteed scale for **final** grades.

#### GRADE DISTRIBUTION

GRADE: % equivalent

% score: GRADE

A+	99
A	95
A-	91
B+	88
B	85
B-	81
C+	77
C	70
C-	62
D+	58
D	54
D-	51

92 -	A
90 - 91.99	A-
87 - 89.99	B+
83 - 86.99	B
80 - 82.99	B-
75 - 79.99	C+
65 - 74.99	C
60 - 64.99	C-
57 - 59.99	D+
53 - 56.99	D
50 - 52.99	D-
0 - 49.99	F

F+	40
F	30
F-	20

However, the instructor reserves the right to adjust the curve downward slightly to allow for better breaks between letter grades. He also reserves the right to discard one or more quiz grades for every student from the percent calculation, but this is not a guarantee. There may be some opportunity for bonus points.

### **Final**

There will be a final exam and all students with an average of less than "B" will be required to take it. The final **may** be optional for those with a "B" or better average. The final time will be the scheduled time (from 12:00 to 1:50pm Thursday 12 December 2002 unless there is a change or correction in the university schedule) in NSF 1209.

### **NOTES:**

All material in the course is cumulative and once covered in class, or assigned, may be used on any test or quiz.

### **DISABILITY:**

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office at 1104 University Center (227-1737). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.

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