**Reedley College**                                                                    **Spring 2014**

**ENGR 40 – Programming for Scientists and engineers**

## SYLLABUS

**Schedule No**     52836

| | | |
|---|---|---|
| **Class Hours** | M | 1:30 p.m. – 3:20 p.m. (Lecture) CCI 203 |
| **& Room No** | W | 1:30 p.m. – 2:20 p.m. (Lecture) CCI 203 |
| | F | 1:00 p.m. – 2:50 p.m. (Lab)       FEM 4E |

**Instructor**     Sharon Wu
**Phone**          638-3641 ex-3497
**Office Hours**   W, Th, F          11:00 am – 11:50 am
                   or By appointment
**Office**         FEM 1D
**E-mail**         sharon.wu@reedleycollege.edu

**Course Objectives:**
    In the process of completing this course, students will:
    A.   Write computer programs using an object-oriented programming language C++.
    B.   Write computer programs using selection and repetition control structures
    C.   Write computer programs using pointer and array data structures
    D.   Write computer programs using functions
    E.   Write computer programs to get input from files and write output to files.
    F.   Compile and link C++ programs to create executable programs
    G.   Identify and correct syntax and logical errors in computer programs
    H.   Create proper test cases to test computer programs
    I.   Write a total of 500 to 1000 lines of programs.

**Learning Outcomes:**
    Upon completion of this course, students will be able to:
    A. Describe the software development life-cycle.
    B. Explain what an algorithm is and its importance in computer programming.
    C. Formulate, represent, and solve problems using a high level programming language.
    D. Demonstrate knowledge of high level language syntax, control structures, looping, arrays, files,
       and records.
    E. Demonstrate proper programming style, debugging and testing techniques.
    F. Solve application problems in science and engineering.

**Course Outline:**
    1.   Introduction to Computers and Programming
    2.   Introduction to C++
    3.   Expressions and Interactivity
    4.   Making Decisions
    5.   Loops and Files
    6.   Functions
    7.   Arrays
    8.   Searching and sorting Arrays
    9.   Pointers
    10.  Characters, C-Strings, and the string Class
    11.  Structured Data
    12.  Introduction to Classes

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**Course Prerequisite:**
    MATH 4A - Trigonometry or
    MATH 4C - Trigonometry/Precalculus and
    Eligibility for English 25 and English 26.

**Textbook:**
    Use one of the following textbook:
1. Starting out with C++ From Control Structures through Objects, 7th Ed, Brief Version. By Tony Gaddis, Pearson
2. Starting out with C++ From Control Structures through Objects, 7th Ed, By Tony Gaddis, Pearson

**Blackboard**
    **Blackboard** is used to post course information, programming assignments, and announcements. You will submit your programming assignments on Blackboard.
    To log-in Reedley College Blackboard:
        **User name**: your student ID
        **Password**:   (* Be sure to change your password after you login)

**Computer Lab:**
    Computer lab is in room FEM 4E. Computers (IBM compatible) and HP laser printers are used in this lab. C++ Builder 2010 and Visual C++ Express are installed on all computers. Students need to have a flash memory device for programming assignments.

**Homework Assignment:**
    Homework is assigned for each chapter. Homework is due after the chapter is completed. Each assignment is worth 10 points and will be graded on **correctness, completeness, neatness**, and **effort** of the entire assignment. Points will be deducted for late homework. Homework should be done on 8.5" by 11" lined paper, stapled on upper left hand corner, with your name and chapter/section number written on the upper right hand corner.

**Lab Assignments:**
    Lab assignments are assigned before each lab session. You will complete the lab assignment at end of the two-hour lab period. Turn in the lab assignment on Blackboard at end of each lab.

    Submit your **program** (source code only) and program input/output on Blackboard. Programs are graded using following criteria: **documentation, readability, correctness,** and **test case results**.

**Programming Projects:**
    There will be additional programming assignments to be completed outside the class lab sessions. Due dates will be indicated on the assignments.

**Alice:**
    Alice is educational software that teaches computer programming in a 3D environment. Assignments, using Alice to create animation, will be given for each chapter.

**Tests:**
    There is a written test every three chapters. Each test is 100 points. Early tests can be arranged with a very good reason. A more **difficult** late test can only be arranged if you have an excuse verified by an impartial party (i.e., a doctor or a court note).

**Grading:**
    50% of the final grade points are from the average score of all chapter tests.
    30% of the final grade points are from the average score of all lab assignments.
    10% of the final grade points are from the average score of homework assignments.
    10% of the final grade points are from programming term projects.

    Final grade is assigned using following scale:

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| 90-100 points A | 60- 69 points D |
|---|---|
| 80- 89 points B | < 60 points F |
| 70- 79 points C | |

**If you have perfect attendance and your grade is within 1 point (or 1%) of the next higher letter grade, the instructor will award you the next higher letter grade.**

<u>**Attendance**</u> (**Also see Attendance Policy under Academic Regulations in Class Schedule):**

Attendance will be taken at beginning of each class. Students, who leave the class before the end of class, will be counted as tardy. Two tardiness count as one absence. Your classmates and I would greatly appreciate that you take care of your personal needs (i.e., using the restroom, getting a drink…etc.) before the class begins.

Students will be dropped from the class if they fail to attend the first class session of the semester. During the semester up to final drop date, any student who missed more than two weeks of class meetings (cumulative) will be dropped from this class (**6** classes).

<u>**Student Conduct**</u> (**Also see Student conduct under Campus Policies in Class Schedule):**

Students are expected to conduct themselves in a responsible manner in the classroom. Specific rules and regulations have been established in Board Policy 5410. A copy of this policy is available in the college library, the Admissions Office, the Vice President of Student Services, the Vice President of Instruction's Office, and in the Student Activities Office. Failure to adhere to the accepted standards will result in disciplinary action.

<u>**Accommodations for students with disabilities:**</u>

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

<u>**Plagiarism and Cheating Policy**</u> (**See Cheating and Plagiarism under Campus Policies**)<u>**:**</u>

Cheating and plagiarism is prohibited in the class. Incidents of cheating and plagiarism will result a failing grade on the particular examination or assignment in question.

<u>**Important Dates:**</u>

| Class begin | Monday | 01/13/2014 |
|---|---|---|
| Last day to register | Friday | 01/31/2014 |
| Last day to drop this class to avoid a "W" | Friday | 01/31/2014 |
| Last day to drop this class with a "W" | Friday | 03/14/2014 |
| No classes: | | |
| Martin Luther King Jr. Day | Monday | 01/20/2014 |
| Lincoln Day | Friday | 02/14/2014 |
| Washington Day | Monday | 02/17/2014 |
| Spring Recess | Mon - Fri | 04/14/2014 – 04/18/2014 |
| **Final Exam** | **Wednesday** | **05/21/2014**<br>**1:00 pm – 2:50 pm** |