MISSION STATEMENT: The School of Business prepares a diverse student body for successful careers by offering high-quality professional business programs in a student-centered learning environment. As a teaching institution enriched by management practice-related and pedagogical scholarship and service, the School primarily serves undergraduate students while offering strategically-focused graduate programs.

COURSE NUMBER AND TITLE:  CS 561 Systems Programming

CLASS MEETING TIME AND LOCATION:  MW 2:00 – 3:20 pm Cremer 315

PREREQUISITES:  CS 340 Data Structures I

INSTRUCTOR AND OFFICE:  Professor Heidi Webb, CH 111

OFFICE HOURS:  M W 3:30 – 4:30 pm TR 10:00 am – 12:00 pm

CONTACT INFORMATION:
Email is the best way to contact me: hwebb@emporia.edu , however any emails sent after 3:00 pm on Friday may not be answered until Monday morning.

REQUIRED TEXT:
Title: Introduction to 64 Bit Intel Assembly Language Programming for Linux: Second Edition
Author: Benjamin Ray Seyfarth
Publisher: CreateSpace Independent Publishing Platform; 2 edition (June 23, 2012)
ISBN-10: 1478119209

SUPPLEMENTAL MATERIALS:
EBE IDE (free), it will be available on Skylab, but you can also install a copy on your personal computers. I recommend you download the install from

COURSE DESCRIPTION:
This course covers the organization of a computer system, the internal representation of data, memory management, input/output and interrupts. Students will utilize system software in order to program the system via assembling, linking, and debugging.
COURSE OBJECTIVES:
By the end of the semester, you will be able to:
- Exhibit number systems problem solving skills
- Edit, compile, execute, and debug an assembler program.
- Write syntactically and semantically correct assembler programs.
- Write assembly functions that can be called from C++ programs.
- Manipulate standard data types and other forms of data within an assembler program.
- Implement conditional and looping structures within an assembler program.
- Implement and manipulate standard data structures within an assembler program.

SPECIAL FEATURES OF THE COURSE: All assignments are important and in computing there is no way to avoid the comprehensive nature of the subject. The magnitude of difficulty with an assignment increases when previous assignments are not completed or ignored. For this reason for a student to be successful in this course all assignments must be completed and turned in on time. Missed in-class assignments CANNOT be taken at a later time and no project will be accepted after the day it is due unless the instructor has granted the 3 day extension, which must be approved prior to the original due date.

COURSE EVALUATION PROCESS/LEARNING ACTIVITIES: (GRADING, MAKEUP EXAMINATION POLICY, TERM PAPERS, CLASS PARTICIPATION, ETC.)

Course Grade:
There will be one midterm plus a comprehensive final exam. If there is a scheduling conflict let me know beforehand, and I will make accommodations. Graded projects will also be assigned throughout the semester and expected to be turned in by the due date deadline (Friday’s @ 9:00 am, unless otherwise noted on the course schedule). Any extensions for graded projects MUST be approved prior to the due date by the instructor. Requests for extensions are at the discretion of the instructor and your request may or may not be approved. Any extensions granted will be for no more than 3 days after the original due date and subject to an automatic 15% reduction in grade.

In-class lab assignments are completed during the class period. These labs are graded as class participation/attendance. If any unforeseen problems occur during class and these assignments need extra time, they will be due at the start of the next class meeting. If you are absent on the day of an in-class assignment you may do the work but it will be entered as a zero since you did not attend the class and consequently could not participate in class discussions.

Regardless of accumulated points the final exam is mandatory, and you MUST achieve a passing grade on the final.

<table>
<thead>
<tr>
<th>GRADING</th>
<th>WEIGHTS</th>
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<tr>
<td>In-class assignments</td>
<td>10 %</td>
</tr>
<tr>
<td>Graded Projects</td>
<td>40%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>30%</td>
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These guidelines represent the planned grading standards; however, the guidelines may change if circumstances warrant.

**Grading Scale:**

- 90 - 100% = A
- 80 - 89% = B
- 70 - 79% = C  Plus and minus grading is NOT utilized.
- 60 - 69% = D
- Below 60% = F

A. **In-class assignments** – Assignments completed during the class are a vital part of the learning process. These assignments will be assigned periodically during the semester as small projects or quizzes. It is not known how many of these assignments will be given during the semester. The lowest assignment grade will be omitted in computing the final grade. Missed in-class assignments **CANNOT** be taken at a later time.

B. **Examinations (2)**

- Midterm: Wednesday Oct. 16th  2:00 PM – 3:20 PM
- Comprehensive Final Exam: Tuesday Dec. 10  1:00 PM – 2:50 PM

C. **Projects** – There will be a total of 8 projects during the semester. Grading is based on completing all of the requirements and submitting a project that works according to the specifications. Penalties will be assessed for failing to meet the deadline, for non-working projects, for failing to follow the assigned requirements. All projects will be due on a Friday by 9:00 AM, unless other indicated in the course schedule.

**ATTENDANCE POLICY:**

Students are expected to attend, prepare for and participate in classroom activities. Attendance is factored in through class participation via discussions and in-class projects. Excessive absenteeism will impact your final grade. I will count two tardies or early departures as a single absence.

**ACADEMIC DISHONESTY:**

At Emporia State University, academic dishonesty is a basis for disciplinary action. Academic dishonesty includes, but is not limited to, activities such as cheating and plagiarism (presenting as one’s own the intellectual or creative accomplishments of another without giving credit to the source or sources).

The faculty member in whose course or under whose tutelage an act of academic dishonesty occurs has the option of failing the student for the academic hours in question and may refer the case to other academic personnel for further action. Emporia State University may impose penalties for academic dishonesty up to and including expulsion from the university. Additional information on this policy can be found in the student handbook [http://www.emporia.edu/studentlife/handbook/]
CLASSROOM PROTOCOL:
Arriving late to a class not only disrupts the instructor but also your fellow classmates, for this reason you are expected to arrive on time ready for class. Turn off and put away (book bag or purse) your cell phone during all class periods. Answering a call during class is not acceptable at any time. If you find yourself receiving a call, text or tweet during class the assumption will be that you have a grave emergency occurring that needs to be handled outside of the classroom. Any student using the telephone during class, in the classroom, will have it placed on the instructor desk for the rest of the class period. If this situation occurs again, the student will be dismissed from class.

DISABLED STUDENT POLICY:
Please contact the instructor immediately if (1) you have or think you have a disability or medical condition which may affect your performance, attendance, or grades in this class and for which you wish to discuss accommodations of class related activities or schedules, (2) you may require medical attention during class, or (3) you may need special emergency evacuation preparations of procedures. Emporia State University will make reasonable accommodations for persons with documented disabilities. Students need to contact the Director of Disability Services and the professor as early in the semester as possible to ensure that classroom and academic accommodations are implemented in a timely fashion. All communication between students, the Office of Disability Services, and the professor will be strictly confidential. Contact the Office of Disability Services and Non-Traditional Student Programs at Room 211 S. Morse Hall, 620/341-6637 Voice, 620/341-6646 TTY, or via e-mail disabser@emporia.edu. Accommodations are provided on an individualized, as-needed basis after needs and circumstances have been evaluated.

WITHDRAWAL POLICY: Students who decide to withdraw and receive an automatic “W” must complete the formal withdrawal procedure by Wednesday, October 25, 2013.

COURSE TOPICS BY CHAPTER:

1. Introduction to assembly language and ebe
2. Numbers – Binary, Hexadecimal, integers, floating point
3. Computer memory
4. Memory Mapping in 64 bit mode
5. Registers
6. Assembly language and math
7. Bit operations (NOT, AND, OR, Exclusive OR, etc.)
8. Branching and looping
9. Functions
10. Arrays
11. Floating Point Instructions
12. System Calls (as time permits)
13. Structs (as time permits)
14. C stream I/O functions (as time permits)
15. Data Structures