Semester: Fall 2005
Class Time: Mon / Wed 8:30 am - 9:45 am
Instructor: Mr. Jesse Middaugh
E-mail: jm10@psu.edu / jmiddaugh@psu.edu

Office Hrs: T 09:00 am – 11:00 am / Th 10:00 am – 11:00 am
T/Th 3:15 pm – 4:00 pm
T/Th 1:00 pm – 2:00 pm by appointment
Or by appointment (If you make an appointment, please be prompt.)

Course Description:
Systems Design Project is a required course for information systems majors in the business program. INFSY 450 is the capstone course. The primary objective of this course is for students to develop Information System (IS) solutions to real-life problems by following the entire systems development lifecycle (SDLC). The course allows students to demonstrate their mastery of the SDLC methodologies and analytical skills. Throughout the semester-long project, students are assessed on their understanding of IS methodologies. Students develop a team project to foster problem solving, communication, and team skills required in the IS work force. Individual assessment is evaluated through demonstration of the understanding of IS skills (i.e. application development, oral presentations, and written communication). Individuals are required to prepare professional written documents (i.e. definition document, the solution proposal, and the design document). Then students develop a solution prototype matching the criteria outlined in their requirement documents. In addition, students are required to provide several professional presentations. Concepts in this class encompass the student’s entire Information System field of study. Students demonstrate the concepts of Analysis, Design, Development, Project Management and Communication.

Course Resources:

Supplementary Materials:
- 3-Ring-Folder (or similar style folder)

Course Format
This course is designed to allow students to pursue the development of a solution to a real life problem. Supporting resources are available at the ANGEL website for the class. The instructor will meet with the student teams on a regular basis as they work independently towards their solution. Students have to strictly follow the deadlines (Key deadline dates) provided in the course outline.

Course Prerequisite: INFSY 307, INFSY 445, and 6 credits of additional INFSY courses, 3 credits must be either of INFSY 413, INFSY 436, or INFSY 440 and Seventh or Eighth Semester Standing
Grades:
The following grade distribution will be used in this class:

<table>
<thead>
<tr>
<th>SDLC Topic</th>
<th>Percentage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Analysis</td>
<td>15%</td>
<td>95.00 and above A</td>
</tr>
<tr>
<td>Systems Design</td>
<td>15%</td>
<td>90.00 to 94.99 A-</td>
</tr>
<tr>
<td>Testing Results</td>
<td>20%</td>
<td>87.70 to 89.99 B+</td>
</tr>
<tr>
<td>Final Report / Presentation / System</td>
<td>45%</td>
<td>83.33 - 87.69 B</td>
</tr>
<tr>
<td>Participation / Proposal / Presentations / Reporting</td>
<td>5%</td>
<td>80.00 to 83.32 B-</td>
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<td>75.00 to 79.99 C+</td>
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<td>70.00 to 74.99 C</td>
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<td>Below 60.00 F</td>
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- A midterm and/or final exam may be given at the instructor’s discretion. If such exam(s) is (are) given, then the grading scale will be adjusted.
- **Class Full-Attendance is Mandatory** - Points will be deducted if the entire class is not attended.
- Missed classes or missed appointments will result in an Automatic 10% deduction in your final grade.
- Each team member must contribute to each portion of the project’s SDLC. Non-Contributing member will receive a zero for that portion of the project.

Curriculum Included in the Content:

**Collaborative Skills:**
- Teams collaborate to complete a functioning system.
- A final project is developed and presented to the class by the student teams.

**Communication Skills:**
- Every student is required to submit three written project reports:
  - 1) System Analysis Report
  - 2) System Design Report
  - 3) Final Culminating Report
- Every student participates in the oral presentation of a final team project.
- Oral and Written – Every student is required to submit at least three written reports (not including exams, tests, quizzes, or commented programs) of typically fifty pages and to make three oral presentations of typically 5 – 30 minute’s duration.

**Ethical, Legal, Security and Global Policy Issues:**
- Every student is required to address the security implications of their application and protection of the application’s data.
- Topics covered or addressed

<table>
<thead>
<tr>
<th>Topic</th>
<th>How used</th>
<th>Techniques</th>
<th>Time</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethical</td>
<td>Use of hardware, system, and customer information Discussion of copying code</td>
<td>Policies</td>
<td>Included in one class</td>
<td>Papers and Presentations</td>
</tr>
<tr>
<td>Legal</td>
<td></td>
<td>Policies</td>
<td>Included in one class</td>
<td>Papers and Presentations</td>
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<tr>
<td>Security</td>
<td>Information System Protection</td>
<td>Hardware protection</td>
<td>Included in one class</td>
<td>Papers and Presentations</td>
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<td>Software protection</td>
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<td>Network protection</td>
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<td>Data protection</td>
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<tr>
<td>Global</td>
<td>N/A</td>
<td>N/A</td>
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</table>

**Professional Responsibility/Development:**
- An emphasis is placed on analysis, design, development and documentation in an effort to recognize professional requirements for software design and development.
- Students are faced with the task of developing an application from conception through the development process. They learn each of various process of the SDLC.
- Students will learn problem-solving skills are they are faced with developing their system from scratch to meet a user’s requirements.
<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Topics</th>
<th>Attendance</th>
<th>Assignments</th>
<th>Harris</th>
<th>Project</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 31</td>
<td>Lecture – Introduction</td>
<td>All</td>
<td>Chapters 1, 2</td>
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<td>RFP (Topic)</td>
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<td></td>
<td></td>
<td>Course Introduction</td>
<td></td>
<td>Appendix A, B, C</td>
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<td>Team formation and problem definitions</td>
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<td>Project Management</td>
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<td><strong>KEY DEADLINE DATE Aug 31</strong></td>
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<tr>
<td>2</td>
<td>Sept 07</td>
<td>Lecture - Analysis</td>
<td>All</td>
<td>Chapters 3, 4, 5, 6</td>
<td></td>
<td>Topic Proposal Presentation &amp; Team Contract</td>
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<tr>
<td></td>
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<td>Process Simplifications</td>
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<td>Refined Topic Due</td>
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<td></td>
<td>And Systems Proposals - The Proposal-writing process</td>
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<td><strong>KEY DEADLINE DATE Sept 07</strong></td>
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<tr>
<td>3</td>
<td>Sept 12</td>
<td>Topic Proposals will be approved</td>
<td>All</td>
<td>Chapters 7, 8, 9, 10</td>
<td></td>
<td>System Proposal &amp; Project Plan</td>
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<tr>
<td></td>
<td>Sept 14</td>
<td>Lecture - Design</td>
<td></td>
<td>Systems Proposals Due</td>
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<td></td>
<td></td>
<td><strong>KEY DEADLINE DATE Sept 14</strong></td>
<td></td>
<td>Project Plan</td>
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<tr>
<td>4</td>
<td>Sept 19</td>
<td>Teams work on Systems Analysis and Design Reports (SADR)</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td>Sept 21</td>
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<tr>
<td>5</td>
<td>Sept 26</td>
<td>Teams work on Systems Analysis and Design Reports (SADR)</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td>Sept 28</td>
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<td>6</td>
<td>Oct 3</td>
<td>Lecture - Development and Implementation</td>
<td>All</td>
<td>Chapters 11 – 15</td>
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<td>SADR &amp; Presentation Due Status Rpt@</td>
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<td></td>
<td>Oct 5</td>
<td>Systems Analysis and Design Reports presentations; Solution proposals due</td>
<td></td>
<td>Systems Analysis and Design Report</td>
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<td><strong>KEY DEADLINE DATE Oct 05</strong></td>
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<tr>
<td>7</td>
<td>Oct 10</td>
<td>Individual Team Meeting with Instructor</td>
<td>Sign-up in Class</td>
<td>Meeting w/ Instructor</td>
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<td></td>
<td>Oct 12</td>
<td>Student teams work on design document and solution prototype</td>
<td></td>
<td>Status Rpt@</td>
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<tr>
<td>8</td>
<td>Oct 17</td>
<td>Student teams work on design document and solution prototype</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td>Oct 19</td>
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<td>9</td>
<td>Oct 24</td>
<td>Student teams complete solution prototype</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td></td>
<td>Oct 26</td>
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<tr>
<td>10</td>
<td>Oct 31</td>
<td>Student teams complete solution prototype</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td>Nov 02</td>
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<tr>
<td>11</td>
<td>Nov 07</td>
<td>System Presentation</td>
<td>All</td>
<td>Systems Presentation</td>
<td></td>
<td>80% System completed</td>
</tr>
<tr>
<td></td>
<td>Nov 09</td>
<td>System should be complete by the time you meet with me!!!</td>
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<td>Walk-through Due</td>
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<td><strong>KEY DEADLINE DATE Nov 07</strong></td>
<td></td>
<td>Word Document (w/ Screenshots) ^</td>
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<tr>
<td>12</td>
<td>Nov 14</td>
<td>Students work on wrapping up the project and presentation.</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td></td>
<td>Nov 16</td>
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<tr>
<td>13</td>
<td>Nov 21</td>
<td>11/24 Thanksgiving</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td>Nov 23</td>
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<tr>
<td>14</td>
<td>Nov 28</td>
<td>Students work on wrapping up the project and presentation.</td>
<td>No Class</td>
<td>Status Rpt@</td>
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<td></td>
<td>Nov 30</td>
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<tr>
<td>15</td>
<td>Dec 05</td>
<td>Final Presentation;</td>
<td>All</td>
<td>Final Presentation</td>
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<td></td>
<td>Dec 07</td>
<td><strong>KEY DEADLINE DATE Dec 05</strong></td>
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<tr>
<td>16</td>
<td>Dec 12</td>
<td>Final Presentation (if needed)</td>
<td>All</td>
<td>Submission Deadline for project material close of SBA office 10:00 am sharp</td>
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</tbody>
</table>

* Due to the pace of the course and student needs, the following outline and schedule may change during the semester. Changes will be announced in class or through PSU’s Course Management System (CMS or ANGEL).

** KEY DEADLINE DATE ** are in bold text Only student teams having successfully completed that section and with the instructor’s approvals can proceed; others are asked to Drop the course to avoid getting a failing grade.

@ Status Reports are due every two weeks on Wednesday from Sept 21 – Nov 30

^ Word Document w Screen Shots - Capture your screen and paste them into a word document in the order that you will be demonstrating your system (This is similar to a training manual)
**Project Components:**
The specific components of the project must include:

- **TEAM CONTRACT:** agreement among the team members
- **PROPOSAL**
- **PROJECT PLAN:** (Grades will be based upon the accuracy of your project timeline.)
  - Timeline / w costs (assume you charge $50 / hours)
  - Who does What When

- **STATUS REPORT:** Due every two weeks

- **SYSTEMS ANALYSIS REPORT:** Interviewing and data collection, system modeling through the use of the following:
  - Summary of Project Requirements / Description
  - Interview Note
  - Data Modeling - ERD (Entity-Relation Diagrams)
  - Process Modeling – Logical DFD (Data Flow Diagrams)
    - i. Data Stores
    - ii. Data Flows
  - Object Modeling – UML (Unified Modeling Language) -must do i or ii then select three others from UML list
    - i. Class Diagram
    - ii. Object Diagram
    - iii. Use Case Diagram
    - iv. Interactive (Sequence) Diagram
    - v. Interactive (Collaboration) Diagram
    - vi. Statechart Diagram
    - vii. Activity Diagram
    - viii. Component Diagram
    - ix. Deployment Diagram
  - System Modeling
  - Ethical / Legal / Security Requirements

- **SYSTEMS DESIGN REPORT:**
  - VTOC (Visual Table of Content) / Site Map / Menu Tree
  - Process Design
    - i. Process Description
    - ii. Decision Table
    - iii. Decision Tree
    - iv. Flow Charts
  - Data Dictionary
  - File/Data Structures
  - Screen Designs
  - Input / Output Designs
  - Ethical / Legal / Security Design

- **SYSTEMS ANALYSIS AND DESIGN REPORT:** consists of all of the above (topic proposal, system specs, project plan, analysis report, design report) w/ a TOC (with author of each section identified), appendices, all pages numbered.

- **PROGRAMMING AND IMPLEMENTATION:**
  - Program specifications
  - Source code (With correct Documentation)
  - TOE Charts – (for Event-driven code)
  - User’s Guide
  - Test Plan
    - i. Test Data
    - ii. Test Results,
  - Implementation Plan
    - i. Operator’s Guide
      - 1. System Requirements
      - 2. Installation Instructions

- **FINAL REPORT:** consists of all of the above (proposal, software platform, analysis report, design report, programming specifications, source code, software on disk, test data, test results, user manual, implementation, and any appropriate training material). w/ a TOC(with author of each section identified),status reports, appendices, all pages numbered.
Semester Project Policies:
The following project requirements must be fulfilled. **Failure to comply with them will result in a failing grade.**

1. The project has to be a new development effort specifically done for fulfillment of this course. The students can’t report a project that has already been completed in a work place or another course.
2. The project must a relational database application containing multiple table interaction or other projects are acceptable with the approval of the instructor.
3. Projects can not be changed without the prior content of the instructor.
4. The project has to be an effort accomplished by the student team.
5. The students are encouraged to obtain feedback and guidance from the instructor, but the instructor is not meant to be your personal code debugger!
6. Each team member must contribute equally to the team.
   - Each team member must contribute to each portion of the project’s SDLC. Non-Contributing member will receive a zero for that portion of the project.
7. The student will be responsible to ensure that the project
   - runs on my PSU computer (for testing purpose or provide a suitable testing environment)
   - runs in the room for the presentation (ensuring that all software and files are installed properly)
8. The project should be designed for a user whereby the student gathers system requirements from the user(s) by using various interviewing techniques.
9. The application should be a professional work consisting of correct I/O designs principles and naming conventions.
10. Student teams must meet all the key dates according to the syllabus.

Other Policies:
Assignments: Assignments will be due at the beginning of class on the due date. **Late assignments will not be accepted for credit** unless arrangements are made with the instructor in advance or in case of emergencies. Emergencies include sudden illness or injury (student or family member), or events such as automobile breakdowns, that prevent the student from completing an assignment or attending class to turn in an assignment. Events under the control of the student, such as oversleeping, procrastination, or appointments of any kind do not constitute emergencies. In cases that seem questionable, the instructor will require proof that an emergency occurred. **ALL ASSIGNMENTS MUST BE SUCCESSFULLY COMPLETED TO PASS THIS COURSE!!**

** KEEP BACKUPS OF ALL MATERIALS HANDED IN TO THE INSTRUCTOR THROUGHOUT THE SEMESTER – in case a disk cannot be accessed or a report page is missing, etc.**

Academic Integrity: "Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to: cheating, plagiarizing, fabricating of information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students." [Penn State's Policies and Rules for Students, p. 33].

Cheating of any type will result in a grade of "F" for the exam or assignment, a possible "F" for the course, and possible dismissal from the University. Instructors in the IS Program consider this policy to cover the following:

- Cheating during an exam, whether it is an in-class or a take-home exam.
- The use of unauthorized notes during an examination.
- Collaboration on graded projects and other homework, unless specifically permitted by the instructor. When collaboration is permitted, the assignment must include the names of individual students who collaborated and information relating specific parts of the assignment to the student(s) who were responsible.
- The use of assignments completed in one class as any part of a project assigned in another class is strictly forbidden. In some cases where a student chooses to expand upon a previous assignment, he/she must obtain permission from the instructor and clearly differentiate what was accomplished in a prior class from that of the current assignment.
- The use of materials developed for an employer cannot be used to fulfill a course requirement.

It is perfectly acceptable to discuss assignments, but **totally unacceptable** to share program code. The sharing or copying of code for individual assignments will be considered cheating (see above). It is each student's responsibility to ensure that his/her program code is deleted from the PC in the student lab before leaving the lab after each session. This includes deleting the folder and emptying the recycle bin. NOTE: In cases of cheating, both parties will be held equally responsible, i.e. both the student who shares code and the student who copies the code.
Note to Students with disabilities: It is Penn State’s policy not to discriminate against qualified students with documented disabilities in its educational programs. If you have a disability-related need for modification in this course, contact the Disability Service Coordinator in the Student Assistance Center (W117 Olmsted; 948-6025).

Class Cancellation:
In case of class cancellation due to weather or other conditions, the class will be notified by ANGEL at least two hours before the start of class.

Course Conduct:

☐ Class Attendance is mandatory. If you must miss class, please inform me about the absence prior to the class. Unexcused absences will affect your participation grade. Attendance is a prerequisite to understanding course content. If you miss class, it is your responsibility to find out what work was missed, make up work and also to be responsible for any course related announcements. Students missing class must obtain missed work assignments from other class members. Active learning, team building, and collaboration are principles subscribed to by the Information Systems faculty. Thus, frequent absences from class will impact the final course grade.

☐ Class will start on time. Please take your seat prior to the start of class.

☐ No makeup quizzes or exams will be given without prior, legitimate excuse and accompanied by documentary evidence.

☐ You should attend each class and actively participate in the discussions during class. If you are uncomfortable with public speaking, or if English is not your native language, we should meet in the first week of school to establish ways to make you more comfortable in speaking and interacting with your peers.

☐ You are responsible for all the readings, even if the material is not explicitly covered in class. You should read the class materials prior to class and be prepared to discuss and ask questions about the readings and assignments. You should also re-read the material after class, as not every topic will be covered during class time.

☐ All work must be completed and turned in at the start of class on the assigned date. No late work will be accepted. Late means after the class has begun. Note that a computer’s failure (including CMS being down for maintenance) is not an excuse (it represents poor planning on your part).

☐ All assignment should be computer-printed, double-spaced, on 8.5"x 11" paper. All pages should have 1" margins. Papers should be stapled and collated.

☐ I read to the fifth mistake. Your grade will be based on what we have read to that point. Mistakes include spelling, grammatical errors, and typos. Carefully proofread your work.

☐ Your work should be properly referenced and adhere to standards of both academic integrity and proper form. Generally, I prefer the APA style (see http://www.apa.org).

☐ I expect individual work should be just that – it should be done by you, alone.

☐ I expect group work should be just that – from the entire group. If I become aware that you are not contributing to your group equally, I will intervene.

☐ Class participation is my way of assessing your intellectual engagement with the topics we are covering. You can demonstrate this engagement through a number of ways. For example, speaking in class, bringing in to the class relevant material (such as copies of articles) from outside sources, contributing to on-line discussions with peers via CMS, working with the team-members, and visiting me during office hours to discuss material being covered in class.
**Tips for Success:**
The most important things you can do this semester are:
- Don’t Procrastinate.
- Build an actual system for a client.
- Attend class.
- Pull your own weight in the team.
- Don’t wait until the last minute to start assignments.
- Take responsibility for your work. I.T. will be your career someday, so apply yourself and learn as much as possible.
- Keep up with homework and class readings.
- Develop an accurate project plan and stay on task.
- Keep your scheduled meetings with your professor and your team.
- Take good notes in class.
- Keep all your work neat and organized and make backup copies.
- Check CMS before class for updates, notes, project specifications, class cancellations, etc. They’ll all be posted throughout the semester.
- Come to me early if you have problems or difficulties this semester.
- Get the project completed early, then make minor changes and relax.
- **Recommendation** - This is not the time to try to learn a new programming language. Your project should be a capstone project, meaning that you should use tools and languages with which you are already familiar.

**Learning Center Support:**
The Learning Center provides tutoring to support your work in this class. The service is free to students. Your visit will be confidential. Visit the website, [www.hbg.psu.edu/LearningCenter/](http://www.hbg.psu.edu/LearningCenter/), email, call 948-6475, or drop in to Olmsted C-216.

**Tutors:**
- Janice Smith, jes57@psu.edu, is the professional tutor in math/science, and Kathy Brode, kbb3@psu.edu, is the professional tutor in writing. The Learning Center also employs a graduate assistant, part-time writing tutors, and peer tutors. The writing tutors can help you with all areas of your writing, including helping you develop your ideas, offering objective feedback during the drafting process or on completed drafts, and explaining MLA or APA documentation formats.

**Small Group Room:**
You can sign up to use the small group room in the Learning Center for group projects. It seats 8, has a whiteboard, and 2 PC’s. Contact Mimi at 948-6475, eew3@psu.edu, or stop in to C-216 to schedule a day and time.