Course Information
Catalog Description: Exploration of theory and practice in design and construction of modern graphical user interfaces, including event models, client-server interaction, and interface design and usability evaluation.

Broad Topics:
1. Theoretical foundations of Human-Computer Interaction, principles of design
2. Applied interface design: models, guidelines, heuristics
3. Expertise in graphical interface software programming
4. Expertise in design and execution of effective usability testing
5. Design and effective use of a usability testing facility

Prerequisites: CS 386 (Software Engineering)
Co-requisites: None
Skill Level: Advanced

Credit Hours: 3
Meeting Times: M W 12:45PM – 2:00PM
Final Exam: Wed. May 10, 2017 12:30PM – 2:30PM
Optional Reading Materials: Will be provided in class
Course Websites: http://www.cefns.nau.edu/~smj93/cs477/
http://bblearn.nau.edu
All assignments should be submitted electronically to Blackboard by the due date. Individual assignments will be clearly specified. Group assignment must contain all member names to receive credit. All group members submit a copy of
the assignment into BbLearn.

**Instructor Information**

Instructor: Steven M. Jacobs, Lecturer  
Office Hours: Office is Engineering Bldg. 69, Rm 324C  
See on-line schedule at Prof. Jacobs’ faculty page:  
http://cefns.nau.edu/~smj93/ (click on “schedule”)  
Email: Steven [dot] Jacobs [at] nau [dot] edu  
Phone: Please email.  
NAU Address: Box 15600, Flagstaff, AZ 86011-5600

**Mapping to ABET Outcomes**

This course addresses the following ABET outcomes:

- Outcome 1.1 Possess professional skills and knowledge of the software design process.
- Outcome 1.2 Ability to function effectively in both co-located and distributed software development teams.
- Outcome 1.3 Possess abilities to effectively communicate orally.
- Outcome 1.4 Possess abilities to effectively communicate in writing.
- Outcome 2.5 Ability to use industry standard Integrated Development Environments (IDEs), debugging support tools, and other modern software development tools.
- Outcome 3.1 Ability to relate a broad education and contemporary issues to software solutions and their impact in a societal and global context.
- Outcome 3.2 An appreciation and understanding of professional and ethical responsibility.

**Course Structure**

This offering of CS477/CS577 will consist of in-class lectures, homework assignments revolving around readings, team programming project, user-interface life-cycle deliverables, and delivery of working prototypes.

**Assessment of Student Learning Outcomes**

Methods of assessment include: Class participation and attendance, short analysis papers associated with assigned readings, and project deliverables, user-interface requirements specification, and prototype demonstrations.

**Grad Students taking CS577**

This offering of CS 477 is co-convened with CS577, the graduate-level course. The theoretical knowledge presented will be the same in both classes. However, the graduate nature of CS577 will be reflected in additional work assigned, with an overall higher standard of professionalism and quality of work than one would expect to find in the equivalent undergraduate course. CS577 will also include a research component that is fitting for graduate-level students.

**Grading System**
### Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Grade weight</th>
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</thead>
<tbody>
<tr>
<td>Homework and analysis papers (individual)</td>
<td>20%</td>
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<tr>
<td>Class participation (including attendance) (individual)</td>
<td>10%</td>
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<tr>
<td>Projects (team-based)</td>
<td>40%</td>
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<tr>
<td>Chapter quizzes</td>
<td>10%</td>
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<tr>
<td>Midterm</td>
<td>10%</td>
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<tr>
<td>Final exam</td>
<td>10%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Your class grade is based on the standard scale of points earned: 90%=A, 80%=B, 70%=C, 60%=D, below 60%=F.

No grades are curved or dropped, though there may be opportunities for extra credit. *Content and amount of homework and project assignments may vary based on class progress.*

Assignments are due on-line on the due date/time listed in BbLearn. Regrade requests of any assignment or test may include regrade of entire assignment or test. You have 2 weeks to question a grade once it is posted in BbLearn. It is your job to check your grades. Review the grading comments in BbLearn for any feedback on your work.

### Pre-requisites and dropping the course

If you have not completed the prerequisites for a course as stated in the academic catalog or if you are absent from class during the first week, you may be administratively dropped from the course before the 21st day of the term. Do not rely on your instructor to drop you from the courses that you want to drop. You are responsible for changing your own course schedule.

### Student Success

Student success is a joint responsibility – that I am here to facilitate your success, but you need to come to class and do the work. Below is a list of what is required to be successful in this or any class.

**Habits of Highly Successful Students**

1. Attend class
2. Listen
3. Read assigned readings
4. Ask questions
5. Get help when you need it
6. Make friends with someone in class. Work collaboratively with your teammates -- you want your teammates to be successful.
7. Do not miss assignments. Do not let your teammates down.
8. Manage your time
9. Practice what you have learned. Rehearse what you will present to class.
10. Start homework and programming projects early

I am here to facilitate your learning. I show you the way, you perform in class.

Schedule

<table>
<thead>
<tr>
<th>Week # (Mon.)</th>
<th>Topics covered [text chapter readings]</th>
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<tbody>
<tr>
<td>Week 1 (Jan. 17)</td>
<td>(Note: no classes Mon. Jan. 17, 2017 - MLK Day). First CS477/CS577 class is Wed. Jan. 19 at 12:45PM. Introduction. [Ch. 1,2,3]</td>
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<tr>
<td>Week 2 (Jan. 24)</td>
<td>Introduction concluded. Interaction devices [Ch. 10]</td>
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<tr>
<td>Week 3 (Jan. 31)</td>
<td>Interaction styles [Ch. 7,8,9]</td>
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<tr>
<td>Week 4 (Feb. 6)</td>
<td>Advancing the user experience (UX) [Ch. 12]; Timely UX [Ch. 13]</td>
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<tr>
<td>Week 5 (Feb. 13)</td>
<td>Interface analysis</td>
</tr>
<tr>
<td>Week 6 (Feb. 20)</td>
<td>Guidance and error handling</td>
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<tr>
<td>Week 7 (Feb. 27)</td>
<td>Midterm: Wed. Mar. 1, 2017</td>
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<tr>
<td>Week 8 (Mar. 6)</td>
<td>Specification techniques [Ch. 14]</td>
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<td>(Mar. 13–17)</td>
<td>Spring Break</td>
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<td>Week 9 (Mar. 20)</td>
<td>Project presentations</td>
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<td>Week 10 (Mar. 27)</td>
<td>Visual design [Ch. 4]; Design case studies [Ch. 6]</td>
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<tr>
<td>Week 11 (Apr. 3)</td>
<td>Evaluation and usability [Ch. 5]</td>
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<td>Week 12 (Apr. 10)</td>
<td>Implementation models, tools, environments and techniques</td>
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<td>Week 13 (Apr. 17)</td>
<td>Special topics: collaboration [Ch. 11]; Data visualization [Ch. 15]; Search [Ch. 16]</td>
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<td>Week 14 (Apr. 24)</td>
<td>Project presentations</td>
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<tr>
<td>Week 15 (May 1)</td>
<td>More special topics. What is next? [Ch. ‘Afterward’]</td>
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Course Policies

Late Policy

All assignments will be due as specified in BbLearn. Project and homework assignments are accepted with a 10% late penalty per school day, i.e. 50% penalty may be imposed for work one week late and 100% penalty for work submitted over two weeks late.

If you miss a test or know you will miss a test, discuss the matter with me as soon as possible. Exceptions for extenuating circumstances can, of course, be made. If you are unable to make it to an exam or assignment submission due to a serious illness or injury, let me know as soon as possible (and be prepared to offer any supporting documentation I ask for).
Communication with professor: include “CS477” or “CS577” in email

Outside of class, please contact Prof. Jacobs by attending an office hour or via regular email: steven.jacobs (at) nau.edu (not BbLearn email) for any questions, e.g. requesting an excused absence, assignment content, or your status in the class. Include “CS477” or “CS577” in the body or subject of the email message.

Attendance & Absentee Point Reductions

Regular attendance is expected. Attendance is taken. Don't be late, and don't leave until class is dismissed. While class attendance is expected, please be cautious about attending class if you are feeling ill. Please inform me by email if you are feeling unwell; if you are experiencing flu-like symptoms, you should not attend class; please take precautions not to infect others, and seek medical attention if your symptoms worsen. Remember, unless you are ill or have a family emergency, it is unwise to not miss any classes. Recall that absences do not include institutionally documented and approved absences. Besides illness, absences are also permitted other medical reasons, or family matters, if discussed in advance of the missed class. If attendance is poor, I will use my judgment at the end of the semester to drop one letter grade for poor attendance.

Plagiarism and Cheating

Students are to work independently and without consultation with other students unless the assignment specifically states that you may collaborate. Grades are a way to motivate students and to evaluate students' mastery of a subject and their ability to get work done. The grades you get are not themselves truly important, but instead are representative of your knowledge, capabilities, and work ethic, and those are the things that matter.

If you plagiarize source code, fabricate results, make fraudulent claims, or attempt to cheat in any way, you are misrepresenting yourself, your level of understanding, your capabilities, and your ability to accomplish things. It is dishonest and unethical.

Anyone who plagiarizes, copies, fabricates, or cheats will at the least receive a zero on that assignment or test.

Consulting with others and using their advice on projects is fine. However, the work you submit should be your own work that you thoroughly understand and are entirely responsible for.

Electronic Devices

Feel free to bring your laptops and take electronic notes or try things out as we talk about them during lecture. Note that updating your Facebook page does not count. During exams, no electronic device use is allowed; this includes music players with
headphones. Also, please be courteous to your classmates and me by silencing your cell phones.

I reserve the right to ask you to stop using any device if it is bothersome or distracting to the class.

**Academic Contact Hour Policy**

The Arizona Board of Regents Academic Contact Hour Policy (ABOR Handbook, 2-206, Academic Credit) states: “an hour of work is the equivalent of 50 minutes of class time…at least 15 contact hours of recitation, lecture, discussion, testing or evaluation, seminar, or colloquium as well as a minimum of 30 hours of student homework is required for each unit of credit.”

The reasonable interpretation of this policy is that for every credit hour, a student should expect, on average, to do a minimum of two additional hours of work per week; e.g., preparation, homework, studying.

**University Policies**

There are a number of university policies that govern your education and safety that all students should be aware of. These are:

- Safe Working and Learning Environment
- Students With Disabilities
- Accommodation of Religious Observance And Practice
- Institutional Review Board (and Use Of Human Subjects)
- Academic Dishonesty
- Medical Insurance Coverage For Students
- Classroom Management
- Evacuation Policies

You will find a complete description of each policy here: [http://nau.edu/university-policies/](http://nau.edu/university-policies/)