Time and Place: Section 1: Tu/Th 10:50am–12:05pm, HUGHES 201; Section 2: 12:25pm–1:40pm, PACCAR 005

Instructor: Shawn Bowers  
   Email: bowers@gonzaga.edu, Office: Herak 309C, Phone: (509) 313-5712

Office Hours: 9:30am–10:30am Tues, 1pm–3pm Wed, 9:30am–10:30am Thurs, or by appointment.

Course Description: A survey of approaches used in software engineering focusing on software development processes, requirements engineering, estimation, scheduling, risk analysis, testing, version control, and project management. Students apply the techniques and practices learned to their senior design projects, including the development of a detailed project plan and a functional software prototype.

ABET Course Outcomes: The following are the ABET learning outcomes for CPSC 491. At the completion of this course, students will be able to:

1. Effectively work on a large software project within a team
2. Understand and apply software development processes
3. Identify project risks
4. Elicit and analyze functional and non-functional project requirements
5. Develop basic software architectures and designs
6. Apply software project planning and develop a project plan
7. Develop and present technical material in both written and oral forms

Writing-Enriched Learning Outcomes: In addition to the ABET learning outcomes above, a significant portion of CPSC 491 is focused on technical writing skills. The following are the learning outcomes of the writing-enriched core designation relevant to CPSC 491. At the completion of this course, students will be able to:

1. Demonstrate competency in formal and informal writing specific to the discipline in which the writing occurs
2. Integrate appropriate primary and secondary research in their writing by the means customarily used in the discipline
3. Incorporate feedback received during an intensive revision process

Course Webpage: http://www.cs.gonzaga.edu/faculty/bowers/courses/cpsc491

Course Materials: Lecture notes, assignments, due dates, and general class information will be posted to the course webpage. Be sure to check the course webpage often for updates.

Grading: Grades will be based roughly on the following scale.
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>Three Mid-Semester Exams</td>
</tr>
<tr>
<td>10%</td>
<td>Weekly Quizzes</td>
</tr>
<tr>
<td>35%</td>
<td>Homework Assignments</td>
</tr>
<tr>
<td>15%</td>
<td>Working Prototype (and Write-Up)</td>
</tr>
<tr>
<td>10%</td>
<td>Classwork and Participation</td>
</tr>
</tbody>
</table>

Letter grades will be assigned based on the standard percentage scales (A: 93-100%, A-: 90-92%, B+: 87-89%, B: 83-86%, B-: 80-82%, C+: 77-79%, C: 73-76%, C-: 70-72%, D+: 67-69%, D: 60-66%, F: 0-59%).

**Additional Course Details:**

*Reading Assignments.* Reading assignments are required (unless otherwise noted).

*Homework Assignments.* All assignments must be turned in by the scheduled class period of the given due date. Late class assignments WILL NOT BE ACCEPTED unless prior arrangements are made with the instructor. Some assignments in this class will be done in groups. It is expected that you contribute to these assignments. For individual assignments, it is expected that you turn in your own work.

*Technical Writing.* Technical writing plays a large and important role in software engineering. A software engineer must be able to communicate information both formally and informally to a wide range of audiences including other software developers, users of the software, project sponsors, and project managers. Technical writing is used in software engineering during the design process to articulate, evaluate, and refine requirements, user interfaces, and software architectures. Technical writing is also used extensively in the management of projects to communicate milestones, tasks, test plans, and ongoing project status, as well as to document user feedback and changes to requirements and designs. Technical writing is further used to document the final software design (e.g., for maintenance purposes) and end-user documentation. Throughout this course, students will learn about and have the opportunity to practice a wide range of writing skills that are important for a professional software engineer to master. You will receive feedback and be graded throughout the course on your writing, and are expected to incorporate the feedback to improve your writing artifacts. Assignments, projects, and in-class exercises will provide opportunities to practice and develop technical writing skills, and your grade for these activities will be based on both the content and the quality of your writing.

*Class Participation.* A portion of your grade will be based on your classwork and in-class participation. Much of the in-class work will be done within your senior design team (as possible), and thus will form an important part of your overall effort within your team. Not attending class and not participating in class work will negatively impact your team and likely the impression your project team has of you as a team member.

*Attendance.* It is important that you attend class. The Gonzaga University Catalog states that more than 4 absences (for courses meeting twice a week) constitute a grade of V. If an extraordinary situation (medical, personal, work-related, or other emergency) prevents you from working for an extended period of time, contact me as soon as possible to discuss your situation and to arrange a special schedule (if appropriate). A portion of class time will be set aside for project work with your teammates, making attendance an integral part of the class.

*Academic Honesty:* You are expected to follow the university policy on academic honesty. Examples
of academic dishonesty include: turning in the work of another student and representing it as your own work, knowingly permitting another student to turn in your work, copying from another student, and deliberately transforming borrowed work to disguise its origin. Because this class has a significant group-work component, it is essential that work turned in reflects contributions from all team members (e.g., stating that a team member contributed when they did not may violate the academic honesty policy). In addition, peer evaluation plays a critical role in senior design, and as such, it is important to accurately evaluate each team member. Failure to do so, may violate the academic honesty policy. When in doubt about the policy, please ask for clarification.

*Use of Electronic Devices in Class:* Do not inappropriately use electronic devices during class times. These devices should not be used during class to browse the web, text or instant message, check email, etc. Be sure to put your phone in “silent” mode during class.

*Office Hours:* You are strongly encouraged to take advantage of office hours and/or stop by or make an appointment to meet with me if you have questions about the course material. I am more than happy to help you, and office hours are a great way to ask questions and get one-on-one help with the material. This also holds true for your team—please take advantage of office hours with both individual and group questions.

*University Statement Regarding Course Expectations:* As a Jesuit university that seeks to provide an equal opportunity to learn for all students, this course is offered with the expectation that students are here voluntarily, and understand that the university expects all interactions relating to its courses to occur in the context of a professional academic work environment that is welcoming and accessible to all students regardless of gender, race, ethnicity, religion, disability, sexual orientation or identity and any other non-merit factor in educational programs or activities. This environment includes virtual course environments, such as Blackboard, and any course-related communications via e-mail and social media. We strive to create a healthy environment conducive to intellectual honesty and free inquiry; as such, behaviors which constitute harassment, discrimination, or hostile and/or inappropriate conduct will not be tolerated, and faculty, staff and administrators will take action to ensure such matters are addressed promptly and appropriately. For inquiries or concerns about non-discrimination or the complaint process at Gonzaga, contact the Office of Equity and Inclusion, Business Services Center, 102 E. Boone Avenue.

*University Note on Harassment, Discrimination and Sexual Misconduct:* Consistent with its mission, Gonzaga seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX and Gonzaga’s policy prohibit gender-based harassment, discrimination and sexual misconduct. Gonzaga encourages anyone experiencing gender-based harassment, discrimination or sexual misconduct to talk to someone from the Campus and Local Resources list found in the Gonzagas Harassment and Non-Discrimination Policy. It may be helpful to talk about what happened in order to get the support needed and for Gonzaga to respond appropriately. There are options for support and resolution, namely confidential support resources, and campus reporting and support options available. Gonzaga will respond to all reports of sexual misconduct in order to stop the harassment or misconduct, prevent its reoccurrence and address its effects. Responses may vary from support service referrals to formal investigations. As a faculty member, I want to get you connected to the resources here on campus that can help you in this situation and therefore will report all incidents of sexual misconduct and thus cannot guarantee confidentiality. I will provide our Title IX coordinator with relevant details such as the names of those involved in the incident, and Title IX will reach out to you to explore options for support, safety measures and reporting. For inquiries or concerns about gender-based harassment, discrimination or sexual misconduct or the complaint process at Gonzaga,
contact the Title IX Coordinator, Business Services Center, 102 E. Boone Avenue.

_University Notice to Students with Disabilities/Medical Conditions:_ The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability/medical condition requiring an accommodation, please call or visit the Disability Access Office.