Day/Time: TR 9:25am–10:40am

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

Office Hours: 11am–1pm TR, 1pm–2pm W, or by appointment.

Course Webpage: http://www.cs.gonzaga.edu/bowers/courses/cpsc223

Required Textbook: Please go to learn.zybooks.com and use code GONZAGACPSC223BowersSpring2020 to subscribe. Note requires creation of an account.

Course Materials: Lecture notes and homework will be made available on the course webpage. We will also use Blackboard for posting grades and Piazza for course questions and discussions.

Course Description: This course covers a mix of topics related to data structures, algorithms, and C++ programming. Topics related to data structures include hash tables, binary search trees, balanced binary trees, and heaps. Topics related to algorithms include sorting and searching as well as basic ideas in complexity analysis. Finally, topics related to C++ include abstract classes, inheritance, templates, and operator overloading. This course is a required course for a number of upper division courses.

Prerequisites: MATH 231 must be taken either prior to or during the same semester as CPSC 223.

Grading:

45% – Homework Assignments
5% – Readings (via completion of in-book “activities”)
10% – Quizzes
20% – Two mid-semester exams (10% each)
20% – Final exam

Please note that to pass the class you must average 60% or higher on homework assignments, 60% or higher on quizzes, and 60% or higher on exams. For example, if you average over 60% on homework assignments, but less than 60% on exams, you will not receive a passing class grade.


Course Policies:

Student Expectations: As a student, you are responsible for understanding and learning the material associated with this course. If you do not understand topics discussed in class, material presented in reading assignments, or instructions on tests or assignments, it is your responsibility to ask for help from the instructor. You can get help from the instructor during office hours (or outside of office hours by appointment), via email, or using the Piazza system set up for the course. Note that you should start your assignments early to leave yourself enough time to both ask for help or clarification if needed and to complete the actual assignment once your questions are answered.

Assignments: All assignments (including project deliverables) must be turned in during the scheduled class period of the given due date. No late assignments will be accepted unless otherwise noted by the instructor.
If you expect to miss class when an assignment is due, turn your assignment in prior to the due date.

**Exams and Quizzes:** Makeup exams will only be given in cases of medical, personal, work-related, or other emergencies. If an emergency arises and you are going to miss an exam, contact me as soon as possible (prior to the exam) to arrange an alternative exam time. Quizzes make up 10% of your final grade, there will be at least one (short) quiz a week, and each quiz is equally weighted. If you miss a quiz for any reason, you will receive 0 points for that quiz. NO MAKEUP QUIZZES WILL BE GIVEN.

**Attendance:** It is important that you attend class. The Gonzaga University Catalog states that exceeding two weeks of missed classes constitutes 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). Otherwise, your absence will be treated as unexcused.

**Academic Honesty:** You are expected to follow the University’s policy on academic honesty. Please see the policy on the University’s webpage for more information, including procedures for violations. If you are unclear about the policy or how it applies to this class please ask the instructor.

**Use of Electronic Devices in Class:** Unless otherwise noted by the instructor, electronic devices are NOT ALLOWED in class. If you require using an electronic device in class for note taking, please see the instructor for accommodations.

**Office Hours:** You are strongly encouraged to take advantage of office hours 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.

**ABET Specific Outcomes of Instruction:** Students completing the course will:
1. Design complex programs by the implementation of data abstraction.
2. Analyze the runtime of both iterative and recursive algorithms using O-notation.
3. Understand and use recursive programming constructs.
4. Understand and analyze $n^2$ and $n \log n$ sorting algorithms.
5. Understand the construction and analyze the use of nonlinear data structures and balanced trees.
6. Implement, use, and analyze algorithms with hash tables.

**University Policies and Accommodations:** For general information and policies related to courses at Gonzaga please see the Office of the Registrar’s website\(^1\). Additionally, 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 (509) 313-4134 or visit the Disability Access office (Room 208 in Foley Library).

---

\(^1\)https://www.gonzaga.edu/academics/academic-calendar-resources/registrars-office