CS 515 Algorithms and Data Structures

Catalog description: Greedy algorithms, divide and conquer, dynamic programming, network flow, data structures.

Credits: 4

Terms offered: Fall

Prerequisites: Graduate standing in Computer Science

Courses that require this as a prerequisite: CS 523, CS 529

Structure: Two 100-minute lectures per week

Instructor: Glencora Borradaile

Course content:
1. Greedy algorithms
2. Divide-and-conquer algorithms
3. Dynamic programming algorithms
4. Network flow algorithms
5. Tree-based data structures

Measurable student learning outcomes:
1. Prove the correctness of greedy algorithms.
2. Prove the correctness of divide-and-conquer algorithms.
3. Analyze the running time of algorithms.
4. Design greedy algorithms.
5. Design dynamic programming algorithms.
6. Reduce new problems to network flow problems.
7. Choose data structures to speed up algorithms.

Learning Resources:
- Class notes.
Evaluation of Student Learning:

- Homework assignments (20%)
- Tests and quizzes (30%)
- Final Exam (50%)

Students with Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Link to Statement of Expectations for Student Conduct: [http://oregonstate.edu/admin/stucon/achon.htm](http://oregonstate.edu/admin/stucon/achon.htm)