CS 493 – Cloud Application Development

Credits: This course combines approximately 120 hours of instruction and programming work for 4 credits.

Terms Offered: Fall (On-campus) and Fall+Spring (Ecampus)

Structure: Three 50-minute lectures per week.

Instructor: Rob Hess, hessro@oregonstate.edu

Prerequisites: CS 290 and CS 340 and CS 372

Courses that require this as a prerequisite: None

Catalog Description:
This course covers developing RESTful cloud services, an approach based on representational state transfer technology, an architectural style and approach to communications used in modern cloud services development.

Short Description:
Introduction to concepts and techniques for developing and deploying cloud applications

Course Content:
- RESTful application design and implementation
- Resources, routing, and HTTP verbs
- Data representation and errors
- Efficient data storage models
- Data replication and synchronization
- Authentication and authorization
- Queueing and request processing
- Search indexes and information retrieval
- Cloud API deployment
- API performance, reliability, and scaling

Course-specific Measurable Student Learning Outcomes:
On completion of the course, students will have demonstrated the ability to:

1. Design and implement an effective RESTful application, using appropriate HTTP verbs (GET, POST, DELETE, etc.) to access specific API resources.
2. Evaluate various approaches to representing data in API requests and responses.
3. Evaluate various approaches to alerting.
4. Use modern tools and techniques for storing API data.
5. Use modern techniques to replicate and synchronize data to ensure data safety and consistency.
6. Employ secure mechanisms for authenticating users and authorizing the use of specific portions of an API.
7. **Use** modern tools and techniques to queue and process API requests.
8. **Select** an available open-source search index to meet an API's information retrieval needs.
9. **Create** a publicly available cloud API.
10. **Evaluate** an API’s performance and reliability using appropriate metrics.

**Evaluation of Student Performance:**
- 60% Programming assignments
- 40% Final project

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**Learning Resources:**

**Students with Disabilities:**
Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

**Link to Statement of Expectations for Student Conduct**, i.e., cheating policies http://studentlife.oregonstate.edu/studentconduct/offenses-0