SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Advanced Topics in Computer Science

CS 286

Fall 2025 Section 01 In Person 3 Unit(s) 08/20/2025 to 12/08/2025 Modified 08/20/2025

Contact Information

Instructor: Dr. Sayma Akther

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Office: MH 213

Office Hours:

TuTh 1:30PM - 2:30PM (MH 213)

Course Description and Requisites

Selected topics in computer science. Topics vary each semester and may be repeated for a maximum of 6 units.

Prerequisite(s): Suitable upper division background in mathematics and computer science as set by instructor. Graduate standing. Allowed Declared Major: Computer Science, Bioinformatics, Data Science.

Letter Graded

Classroom Protocols

To foster a **positive and productive** learning environment, please keep the following policies in mind:

Course Materials and Updates

- All course materials will be available on **Canvas**: http://sjsu.instructure.com.
- Regularly check **MySJSU** and your **SJSU email** for important announcements and updates.

Recording and Privacy Policies

- **Recording of class activities, including lectures, is only permitted with prior instructor approval.**
- **Sharing or distributing class recordings is strictly prohibited.**

- All **instructor-generated materials** (e.g., syllabi, lectures, presentations) are protected by copyright. Unauthorized distribution may lead to referral to the **Student Conduct and Ethical Development** office.

Classroom Etiquette and Respect

- Be **respectful** and courteous to your peers and instructor.
- Avoid any form of **interruptive or disruptive behavior** during class.
- Electronic devices should be used **only for course-related activities**.
- The **full Code of Conduct** is available on **Canvas** for reference.

Academic Integrity: Plagiarism and Cheating

- **Homework Assignments**: Any instance of plagiarism or academic dishonesty will result in a **zero** for that assignment.
- **Exams**: Cheating on an exam will result in a **failing grade (F) for the entire course**.
- As per **University Policy F15-7**, all cases of cheating or plagiarism must be reported to the university.

By adhering to these policies, we can maintain a **collaborative, fair, and engaging** learning experience for everyone.

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Learning Outcomes (CLOs)

By the end of the course, students will be prepared to design, implement, and evaluate AI-powered wearable health solutions that enhance public health and everyday well-being. B y the end of the course, students will be able to:

1. *Understand Wearable Health Technologies* – Explain the role of wearable sensors in mobile health (mHealth), their capabilities, and limitations in public health and personal wellness.
2. *Process and Analyze Health Signals* – Apply signal processing techniques to extract meaningful insights from physiological data collected via wearable devices.
3. *Develop AI Algorithms for Wearable Data* – Implement machine learning and deep learning models for tasks such as activity recognition, anomaly detection, and predictive health analytics.
4. *Design AI-Powered mHealth Systems* – Architect end-to-end AI solutions integrating wearable sensor data, cloud/edge computing, and mobile applications.
5. *Evaluate AI-Based Health Solutions* – Assess the accuracy, reliability, and effectiveness of AI-driven wearable health applications in real-world scenarios.
6. *Address Ethical and Privacy Concerns* – Analyze ethical considerations, data privacy regulations (e.g., HIPAA, GDPR), and responsible AI practices in digital health.
7. *Explore Industry Applications and Innovations* – Investigate how AI-powered wearable health solutions are used in industry settings (e.g., fitness tracking, disease monitoring, telemedicine).

8. *Apply AI in Public Health Contexts* – Develop AI models that support population health monitoring, early disease detection, and personalized healthcare interventions.
9. *Understand Business and Commercialization Aspects* – Explore the market trends, startup opportunities, and business models for AI-driven wearable health technologies.
10. *Work on Real-World mHealth Projects* – Design and implement a hands-on project involving AI-powered wearable health data analytics

Course Materials

Textbook

Mobile Health - Sensors, Analytic Methods, and Applications, by James M. Rehg, Susan A. Murphy, Santosh Kumar, published by Springer in 2017.

ISBN-10: 3319513931

ISBN-13: 978-3319513935

Other Readings

Artificial Intelligence: A Modern Approach" by Stuart Russell and Peter Norvig

This is a comprehensive text that covers a wide range of AI topics and is often considered a standard

in university courses.

Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville

This book is essential for understanding the fundamentals of deep learning, a key subset of AI

Course Requirements and Assignments

Assignments/Homework (10%)

- Weekly or bi-weekly assignments based on lecture content and hands-on exercises.
- **Late Submission Policy:** Marks will be **gradually deducted** over time for late submissions.

Exam

- Mid-term (25%)
- Final (25%)

Project

- Mid Demo (20%)
- Final Demo (20%)

Grading Information

A+	97 and above
A	93-96
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	63-66
D-	60-62
F	Below 60

University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.