CSC 215: ARTIFICIAL INTELLIGENCE

In Workflow

1. CSC Committee Chair (tdk@csus.edu;%20jouyang@csus.edu)
2. CSC Chair (faroughi@csus.edu)
3. ECS College Committee Chair (troy.topping@csus.edu)
4. ECS Dean (kevan@csus.edu)
5. Academic Services (torsetj@csus.edu;%20212408496@csus.edu;%20cnewsome@skymail.csus.edu)
6. Senate Curriculum Subcommittee Chair (curriculum@csus.edu)
7. Dean of Undergraduate (james.german@csus.edu;%20celena.showers@csus.edu)
8. Dean of Graduate (cnewsome@skymail.csus.edu)
9. Catalog Editor (212408496@csus.edu;%20torsetj@csus.edu;%20cnewsome@skymail.csus.edu)
10. Registrar's Office (wlindsey@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

Approval Path

1. Tue, 21 Jan 2020 17:52:57 GMT
   Jinsong Ouyang (jouyang): Approved for CSC Committee Chair
2. Mon, 27 Jan 2020 23:22:52 GMT
   Nikrouz Faroughi (faroughi): Rollback to CSC Committee Chair for CSC Chair
3. Tue, 28 Jan 2020 22:13:46 GMT
   Jinsong Ouyang (jouyang): Rollback to Initiator
4. Thu, 30 Jan 2020 23:47:43 GMT
   Jinsong Ouyang (jouyang): Approved for CSC Committee Chair
5. Fri, 31 Jan 2020 00:33:00 GMT
   Nikrouz Faroughi (faroughi): Approved for CSC Chair
6. Fri, 31 Jan 2020 17:47:25 GMT
   Troy Topping (troy.topping): Approved for ECS College Committee Chair
7. Fri, 28 Feb 2020 20:15:42 GMT
   Kevan Shafizadeh (kevan): Approved for ECS Dean
8. Wed, 08 Apr 2020 18:30:00 GMT
   Janett Torset (torsetj): Approved for Academic Services

Date Submitted:Wed, 29 Jan 2020 23:51:01 GMT

Viewing:CSC 215 : Artificial Intelligence

Last edit:Fri, 31 Jan 2020 17:45:49 GMT

Changes proposed by: Haiquan Chen (219700833)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
Haiquan Chen	haiquan.chen@csus.edu	916-278-6087

Catalog Title:

Artificial Intelligence

Class Schedule Title:

Artificial Intelligence

Academic Group: (College)

ECS - Engineering & Computer Science

Academic Organization: (Department)

Computer Science

Will this course be offered through the College of Continuing Education (CCE)?

No

Catalog Year Effective:

Spring 2021 (2021/2022 Catalog)

Subject Area: (prefix)
CSC - Computer Science

Catalog Number: (course number)
215

Course ID: (For administrative use only.)
112491

Units:
3

In what term(s) will this course typically be offered?
Fall, Spring

Does this course require a room for its final exam?
Yes, final exam requires a room

Does this course replace an existing experimental course?
No

This course complies with the credit hour policy:
Yes

Justification for course proposal:
Artificial Intelligence (AI) is one of the fastest growing areas in Computer Science. In order to enhance and boost the AI related education and research at Sac State and in response to student feedback, CSC 215 is updated to reflect the best teaching practice at peer institutions by covering the most recent technology advances in AI. Hands-on components are also maximized in the proposed CSC 215 for first-hand experience in order to strengthen student learning outcomes.

Specifically, the following topics are added/enhanced:
1. Deep learning and its popular programming frameworks
2. GPU model training
3. Adversarial search and stochastic game search
4. Uncertain knowledge reasoning (Bayesian inference and Bayesian network)
5. Computer vision topics
6. Natural language processing

The following topics are minimized/removed.
1. Deterministic knowledge reasoning and predicate logic
2. Expert systems
3. Planning
4. Knowledge-guided inductive learning
5. Speedup learning and decision trees

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Nature of intelligence and possibility of its realization on digital computers via algorithmic and heuristic programming methods. Informed and uninformed search, adversarial search, stochastic search, machine learning, regular and deep neural networks, and knowledge representation and inference over uncertainty. Computer vision topics. Natural language processing. Design and implementation of systems using contemporary programming libraries to solve a variety of artificial intelligence problems.

Are one or more field trips required with this course?
No

Fee Course?
No

Is this course designated as Service Learning?
No

Does this course require safety training?
No

Does this course require personal protective equipment (PPE)?
No

Does this course have prerequisites?

Yes

Prerequisite:

Fully classified graduate status in Computer Science, Software Engineering or Computer Engineering.

Prerequisites Enforced at Registration?

Yes

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Seminar

Seminar Classification

CS#05 - Seminar (K-factor=1 WTU per unit)

Seminar Units

3

Is this a paired course?

No

Is this course crosslisted?

No

Can this course be repeated for credit?

No

Can the course be taken for credit more than once during the same term?

No

Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc."

Students completing this course will be able to

1. Identify the goals, fundamental issues, and sub-fields of artificial intelligence.
2. Explain basic concepts and algorithms in regular and deep neural networks.
3. Apply current software tools to design, implement, and evaluate intelligent systems by modeling real-world problems as machine learning problems.
4. Demonstrate a fundamental understanding of search procedures, adversarial game-playing, and stochastic search.
5. Apply basic concepts and algorithms for knowledge representation and probabilistic inference.

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.

Assignments (Course Outcomes: 1-5)
Projects, report and presentation (Course Outcomes: 3, 4, 5)
Exam (Course Outcomes: 1-5)

Is this course required in a degree program (major, minor, graduate degree, certificate?)

No

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?

No

Will there be any departments affected by this proposed course?

No

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.
I/we agree

University Learning Goals

Graduate (Masters) Learning Goals:
Disciplinary knowledge

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?
No

Is this a Graduate Writing Intensive (GWI) course?
No

Please attach any additional files not requested above:
CSc_215_syllabus_01292020_Chen_final.pdf

Reviewer Comments:
Nikrouz Faroughi (faroughi) (Mon, 27 Jan 2020 23:22:52 GMT): Rollback: Please update the course catalog description to incorporate additional feedback.
Jinsong Ouyang (jouyang) (Tue, 28 Jan 2020 22:13:46 GMT): Rollback: According to Nik, catalog description needs to be changed.

Key: 1083