

GRADUATE COUNCIL: NEW COURSE PROPOSAL

Originating Unit: INSC (NEEL)

Type of action: New course Full online course**

Semester and year course will take effect: Fall 2024

New course title: INSC 70460 Deep Learning Technology

Appropriate computer abbreviation (30 spaces or less): Deep Learning Technology

Course instructional methodology: Lecture

course component types: [ugradcouncil.tcu.edu/forms/Course Component Types.pdf](http://ugradcouncil.tcu.edu/forms/Course%20Component%20Types.pdf)

New course number: INSC 70460

Prerequisites for new course: *include an attachment if additional space is needed*

Graduate standing

Click here to attach a file

attached files can be seen and managed in Acrobat Pro by clicking on View > Show/Hide > Navigations Panes > Attachments

Description of new course (catalog copy): *include an attachment if additional space is needed*

The course examines Artificial Intelligence (AI) methods, tools, and processes associated with deep learning technologies. The ultimate goal is to develop an understanding of the inner workings of the technology to inform AI-related decisions in business practice.

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Fully Online Courses**

All online courses, and /or distance learning offerings must meet State Compliance regulations as defined by specific state legislation. TCU Distance Learning is any for-credit instruction provided to a TCU student outside the State of Texas. This includes internships, clinical, video conferencing, online, or any other delivery format that crosses state lines. Contact the Koehler Center for Teaching Excellence for guidelines. Include a letter of support from the Koehler Center with this proposal.

Supporting evidence or justification: (For a new course, attach proposed syllabus, including course objectives, course outline, and representative bibliography.)

Describe the intended outcomes of the course and how they will be assessed: *include an attachment if additional space is needed*

See attached syllabus

Click here to attach a file

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Additional resources required:

Faculty: None

Space: None

Equipment: None

Library: None

Financial Aid: None

Other: None

Change in teaching load: None

Does this change affect any other units of the University? Yes No

If yes, submit supporting statement signed by chair of affected unit.

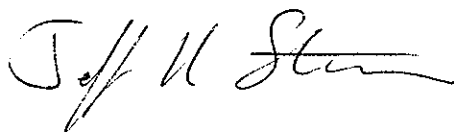
If cross-listed, provide evidence of approval by all curriculum committees appropriate to both the originating and the cross-listed units.

Chair of Originating Unit:

Name: Jeff Stratman

Unit: Information Systems & Supply Chain Management

Signature:

 1/24/24

Syllabus: INSC 70460 Deep Learning Technologies

Instructor:
Semester and Year:
Number of Credits: 1.5
Class Location:
Class Days & Time:
Zoom Access Info:
Office Location:
Office Hours:
Telephone:
Email:
Response Time:

Final Exam Date & Other Important Dates

The final exam is a presentation, which is due in accordance with the TCU Final exam policy

Course Description

The course examines Artificial Intelligence (AI) methods, tools, and processes associated with deep learning technologies. The ultimate goal is to develop an understanding of the inner workings of the technology to inform AI-related decisions in business practice.

Learning Outcomes

1. Gain an understanding of artificial intelligence methods such as but not limited to stochastic gradient descent.
2. Develop knowledge regarding tools used in deep learning such as Pytorch.
3. Learn about processes used in artificial intelligence such as reinforcement learning to produce better performing models.

Prerequisites

- Microsoft Windows laptop per Neely Business School policy is required for this class.
- General computer skills and access to the Internet for research and data gathering.

Required Texts / Materials

Various readings included in TCU Online

Additional / Supplementary Resources

There are no other books that are required for this class but students are encouraged to research on their own complement the provided material.

Several other resources are provided on D2L which will be used for online and class discussions as well as quizzes

Additional information:

1. TCU D2L will be used to post lecture notes, articles, grades, and upload assignments
2. Only the official TCU student email address will be used for course correspondence
3. It is your responsibility to check your TCU email on a regular basis

Teaching Philosophy

Instructional Methods

The classes will be primarily hands-on exercises consist of a combination of lectures (mostly supporting the project and two lectures in support of the prototype development), exercises, and presentations.

Course Policies and Requirements

Presentations (group)

Students (assigned to groups) will select a AI subject to present to the class: either extending a class topic or introducing a new blockchain-related topic. See the presentation assignment description for further details.

Homeworks

Students will download a weekly D2L homework assignment and follow the instructions included in the downloaded document. The homeworks will typically require students to provide summaries of online articles and answer / ask questions related to the readings.

Participation

Students' attendance will be tracked particularly with respect to in class group activities.

Grading

Activity	Points
Presentations (group)	30
Participation (individual)	34
Homeworks (6)	36
Total	100

Grading Scales

Grade	Score	Grade	Score
A	94–100	C	74–76.99
A-	90–93.99	C-	70–73.99
B+	87–89.99		
B	84–86.99		
B-	80–83.99		
C+	77–79.99	F	0–59.99

Late Work

Individual assignments are designed to prepare the students for the class lecture and discussions, and my expectations are that they will be completed on time. I will accept late work but points will be deducted and the same with team assignments. All late work will be penalized by 1/2 point for each day late.

Grading Concerns

Feel free to discuss any grading questions and concerns. The official TCU grade appeal process can be found at <https://tcu.codes/policies/academic-affairs/grade-appeal/>.

Attendance

This is a highly interactive class that requires committed teamwork. Attendance will be taken randomly anywhere between 5 to 10 times during the semester and the points will be allocated accordingly.

The exercises and meeting materials will be graded on a pass/fail basis, i.e., the work submitted is either sufficient for credit or will be given no points (everyone on the team will receive the same score). Students must be present to receive credit.

Students will not be penalized for missing a participation exercise if they have an excused absence. An excused absence is either attendance at an official TCU event, notification to the instructor via Campus Life, or a visit during class time to the sponsor site (approved and confirmed by the sponsor).

Students are allowed one unexcused absence without penalty.

Participation

Due to the highly interactive nature of the class and my teaching philosophy of constructivism and connectivism, my expectations are that all students will actively participate in the classroom or team sessions. My expectations are that students will also assist other students to actively participate in the discussions.

Class Norms & Etiquette

All members of the class are expected to follow rules of common courtesy in all email messages, discussions, and chats. If I deem any of them to be inappropriate or offensive, I will forward the message to the Chair of the department and appropriate action will be taken, not excluding expulsion from the course. The same rules apply online as they do in person. Be respectful of other students. Foul discourse will not be tolerated. Please take a moment and read some basic information about netiquette (<http://www.albion.com/netiquette/>).

Participating in the virtual realm, including social media sites and shared-access sites sometimes used for educational collaborations, should be done with honor and integrity. Please review the relevant sections of the Student Handbook (<https://deanofstudents.tcu.edu/student-handbook/>) for TCU's network and computing policies and communication guidelines.

Technology Policies

Email

Only the official TCU student email address will be used for all course notification. It is your responsibility to check your TCU email on a regular basis.

Sponsor could provide you with a laptop, email and other access to facility, etc. All the sponsors business rules and policies should be adhered to for this class in addition to the TCU policies listed here.

Course Materials

TCU students are prohibited from sharing any portion of course materials (including videos, PowerPoint slides, assignments, or notes) with others, including on social media, without written permission by the course instructor. Accessing, copying, transporting (to another person or location), modifying, or destroying programs, records, or data belonging to TCU or another user without authorization, whether such data is in transit or storage, is prohibited. The full policy can be found at: <https://security.tcu.edu/polproc/usage-policy/>.

Violating this policy is considered a violation of Section 3.2.8 of the Student Code of Conduct found in the Student Handbook (<https://deanofstudents.tcu.edu/student-handbook/>), and may also constitute Academic Misconduct or Disruptive Classroom Behavior. TCU encourages student debate and discourse; accordingly, TCU generally interprets and applies its policies, including the policies referenced above, consistent with the values of free expression and First Amendment principles.

Academic Misconduct

Academic Misconduct (Section 3.4 of the Student Code of Conduct found in the Student Handbook (<https://deanofstudents.tcu.edu/student-handbook/>)): Any act that violates the academic integrity of the institution is considered academic misconduct. The definitions and procedures used to resolve suspected acts of academic misconduct are available in the offices of the Academic Deans and Dean of Students, and are also listed in detail in the Undergraduate Catalog (<http://tcu.smartcatalogiq.com/current/Undergraduate-Catalog/Student-Policies/Academic-Conduct-Policy-Details>) and the Graduate Catalog (<http://tcu.smartcatalogiq.com/en/current/Graduate-Catalog/Academic-Conduct>).

Specific examples include, but are not limited to:

- **Cheating:** Copying from another student's test paper, laboratory report, other report, or computer files and listings; using, during any academic exercise, material and/or devices not authorized by the person in charge of the test; collaborating with or seeking aid from another student during a test or laboratory without permission; knowingly using, buying, selling, stealing, transporting, or soliciting in its entirety or in part, the contents of a test or other assignment unauthorized for release; substituting for another student or permitting another student to substitute for oneself.
- **Plagiarism:** The appropriation, theft, purchase or obtaining by any means another's work, and the unacknowledged submission or incorporation of that work as one's own offered for credit. Appropriation includes the quoting or paraphrasing of another's work without giving credit therefore.
- **Collusion:** The unauthorized collaboration with another in preparing work offered for credit.
- **Abuse of resource materials:** Mutilating, destroying, concealing, or stealing such material.
- **Computer misuse:** Unauthorized or illegal use of computer software or hardware through the TCU Computer Center or through any programs, terminals, or freestanding computers owned, leased or operated by TCU or any of its academic units for the purpose of affecting the academic standing of a student.
- **Fabrication and falsification:** Unauthorized alteration or invention of any information or citation in an academic exercise. Falsification involves altering information for use in any academic exercise. Fabrication involves inventing or counterfeiting information for use in any academic exercise.
- **Multiple submission:** The submission by the same individual of substantial portions of the same academic work (including oral reports) for credit more than once in the same or another class without authorization.
- **Complicity in academic misconduct:** Helping another to commit an act of academic misconduct.
- **Bearing false witness:** Knowingly and falsely accusing another student of academic misconduct.

TCU Syllabus Policies & Resources

Please use this [link](#) or scan the QR code with a mobile device camera to access policies and resources including support for TCU students, student access and accommodation, anti-discrimination and Title IX information, and other important information.



Course Schedule

This calendar represents the current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunities. Such changes will be clearly communicated in class, attendance and teamwork is essential to keep up with the demands of the class.

Calendar

Date	Topic	Due
Week 1	History	
Week 2	The math	HW 1
Week 3	The tools (e.g., Pytorch)	HW 2
Week 4	The tools (e.g., Pytorch)	HW 3
Week 5	The tools (APIs)	HW 4
Week 6	The process (fine tuning, RAG)	HW 5
Week 7	The process (MLOps)	HW 6
Week 8	Presentations	Slides