



EDCI 689: Independent Study

Computational Thinking & CS Education: Foundations, Pedagogy, and STEM Integration

COURSE SYLLABUS

INSTRUCTOR INFORMATION

Instructor: Dr. Karyn Miller, Ph.D

Office Hours: I will be available by appointment.

University Email Address: Karyn.Miller@etamu.edu

Preferred Form of Communication: Email

Communication Response Time: 48 hours maximum (Monday-Friday)

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required

Title	Author(s)	Focus
<i>Computer Science Education: Perspectives on Teaching and Learning in School</i>	Sentance, S., Barendsen, E., Howard, N. R., & Schulte, C. (Eds.) (2023)	K–12 CS Pedagogy
<i>Co-Intelligence: Living and Working with AI</i>	Mollick, E. (2024)	AI Era CS & Skills

Catalog Course Description

Individualized instruction/research at an advanced level in a specialized content area under the direction of a faculty member. May be repeated when the topic varies.

The syllabus/schedule are subject to change.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Access to a Computer with:

- Internet Access
- Microsoft Word Processing Software
- Microsoft Power Point Software
- Adobe or Foxit Reader to open PDF File

Instructional Methods

This is an independent study undertaken under the direction of the course instructor. The course instructor and student will meet at multiple timepoints throughout the semester. The study will prepare a written agenda before each meeting to guide the conversations.

Student Responsibilities

Students enrolled in an independent study are expected to take primary responsibility for their learning. Specific responsibilities include engaging with their course instructor, completing readings and course assignments, responding to instructor feedback, and maintaining professionalism.

Ultimately, students are responsible for the substance and timely completion of the course with the instructor serving as a guide and resource.

GRADING

Evaluation and Grading

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Assignments & Assessments

Dialectical Journals (30%)

For each required reading the student will maintain a dialectical journal. Each entry will use a two-column format: the left column records significant passages, arguments, or ideas from the text; the right column contains my response, including critical reactions, connections to STEM/SEP frameworks, questions the reading raises, and links to my POP. Journal entries for

The syllabus/schedule are subject to change.

each reading are due within one week of completing it. Together, the journals serve as the primary thinking tool for the study and will feed directly into the synthesis essay.

Comparative Synthesis Essay (40%)

A 10–12 page scholarly essay drawing across both required books and all four required articles to address the guiding inquiry question: to what extent do CS education philosophies align with or extend the NGSS Science and Engineering Practices, and what does this mean for integrated STEM instruction in the age of AI? The essay should open with the CT-to-SEP bridge established by Weintrop et al., develop it through the pedagogical perspectives of Sentance et al., and then examine how Mollick and the AI-focused articles complicate or reshape that framework. The essay should demonstrate doctoral-level engagement with the literature, situate the argument within relevant C&I and science education scholarship, and articulate implications for my own teaching and POP. It may serve as a foundation for future dissertation work or a publishable manuscript.

Advisor Check-In Meetings (20%)

The student will meet with her supervising faculty member at least twice during the term: once at the midpoint to discuss progress and emerging ideas from the journals, and once near the end to review the synthesis essay draft. She will prepare a brief written agenda before each meeting to guide the conversation.

Reflective POP Memo (10%)

The student will prepare a 1–2 page memo addressed to her doctoral committee connecting what she has read and wrote to her Program of Practice. The memo should articulate how this independent study shapes her thinking about CS education, STEM integration, and her developing dissertation trajectory.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.etamu.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

The syllabus/schedule are subject to change.

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@etamu.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a ETAMU campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your dissertation advisor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.etamu.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

The syllabus/schedule are subject to change.

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

ETAMU Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.etamu.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

[Graduate Student Academic Dishonesty Form](#)

<http://www.etamu.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

East Texas A&M University

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@etamu.edu

Website: [Office of Student Disability Resources and Services](#)

The syllabus/schedule are subject to change.

<http://www.etamu.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M University Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.etamu.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

ETAMU Supports Students' Mental Health

The Counseling Center at East Texas A&M University, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.etamu.edu/counseling-center

The syllabus/schedule are subject to change.