



Department of Computer Information Systems
John A. Walker College of Business
Appalachian State University

CIS 2350: AI, Business Systems, and Cybersecurity

COURSE SYLLABUS

INSTRUCTOR INFORMATION

Professor: Youngeui Kim
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Email: kimy8@appstate.edu
 Email is the preferred & best mode of communication,
 PLEASE INCLUDE CIS2350 in the subject line (e.g., [CIS 2350] Inquiry About Exam)
Office Hours: Mon & Wed (10:00am - 10:50am & 12:20pm - 1:50pm) or by appointment

COURSE DESCRIPTION

This course explores the current and emerging digital landscape and the skills required to navigate it from a business perspective. Major areas examined include an introduction to artificial intelligence, data science, business systems, cybersecurity, cryptography, and digital literacy. Additionally, students will learn how AI concepts can be applied to robotics, smart systems, cyber security, and businesses. This course will reinforce strategic AI utilization by conducting a case study to find a business opportunity and resolve a current business challenge using AI.

LEARNING OBJECTIVES

The learning objectives for this course are:

- (1) to understand basic principles of AI and AI technologies and concepts,
- (2) to learn about machine learning models and neural network for predictive modeling,
- (3) to analyze unstructured data (text and image),
- (4) to build students' ability to implement AI technologies with Python,
- (5) to appreciate (potential) opportunities and ethical issues and threats driven by new technologies,
- (6) to classify knowledge and skills related to information security and privacy principles,
- (7) to learn information systems structure and cybersecurity along with cybercrime, and
- (8) to apply AI-driven technologies to business and cybersecurity.

COURSE MATERIALS

This course will use multiple materials (**not** required to purchase):

1. Sharda, R., Delen, D., & Turban, E. (2021). Analytics, data science, & artificial intelligence: Systems for decision support. Harlow: Pearson. ISBN-13: 9780135755532
2. Anderson, E., & Zettelmeyer, F. (2020). Leading with AI and Analytics: Build Your Data Science IQ to Drive Business Value. McGraw Hill Professional. ISBN-13: 9781260459142
3. Official ISC2 Certified in Cybersecurity (CC) eTextbook 1st Edition
(<https://enroll.isc2.org/product?catalog=CC-EPUB-DESC>)

All required software (e.g. Python, MS Excel) will be provided to the student and is free of charge.

TECHNOLOGY REQUIREMENTS

Students can make use of either computer labs available on campus (*Peacock Hall, Campus library, etc.*) or use personal computers to complete coursework.

Access to uDesk using a reliable internet connection via a web browser - <https://udesk.appstate.edu/>

ASULEARN

Students are expected to check emails and AsULearn regularly for class related information. Students should carefully review the AsULearn site associated with this class (including announcements), as access to all course materials, information, and requirements are provided there.

COURSEWORK OVERVIEW

Students are expected to stay up to date with the course materials and graded activities. Not getting behind is critical to learning and success in this course.

QUIZZES

In this course, quizzes will serve as a valuable tool to assess your understanding of the material and track your progress throughout the semester. **You will take quizzes in the beginning of classes, and the quizzes will be administered periodically (see the course outline) and will cover topics discussed in class or assigned readings.** Specific details regarding quiz dates, format, and content will be provided in the course schedule and through announcements in AsULearn.

LABS (DISCUSSIONS AND ACTIVITIES)

Lab discussions and activities will vary from performing data set analysis, working with machine learning and artificial intelligence programs, text and image analytics, and other AI and cybersecurity related platforms. These lab sessions are not meant for students to show mastery of programs or analysis, but to allow students the opportunity to gain insight to the implementation on AI, machine learning, and cybersecurity. Details will be given throughout the semester via AsULearn.

GROUP PROJECT REPORT AND PRESENTATION

You will be divided into groups (size is TBD based on number of students) in which you will work through a group project concerning AI. Your team can propose a new business idea (like start-up) or do business case studies (e.g., analyzing data using AI). More details will be provided via AsULearn (and in class).

(Oral presentations can be an effective way to assess your competency on topics. An advantage to this approach is that students can learn from each other and build on your knowledge simultaneously. This type of assessment will also foster career-ready skills such as collaboration, leading a presentation and brainstorming with teammates.)

ATTENDANCE

Attendance is considered important in this course (if you miss some classes, you may not turn in assignments as well). **4 or more unexcused absences will result in a failing grade in this course.**

PARTICIPATION ACTIVITIES (EXTRA CREDITS)

Students taking CIS 2350 can engage in participation activities to earn extra credits. Additional information about activities is provided on page 8 (see EVENT FOR SPRING 2025 FOR EXTRA CREDITS).

GRADING

The following points will be awarded for completion of each course activity.

Course Activities	Quantity	Points	Percentage Total
Quizzes	10 @ 15 points each	150	15%
Labs (discussions/activities)	7 @ 15 points	105	10.5%
Group project report	1 @ 100 points	100	10%
Group project presentation	1 @ 45 points	45	4.5%
Attendance	25 @ 4 points each	100	10%
Midterm Exam		200	20%
Final Exam		300	30%
Total		1000	100%

In this course, the following grade scale will be applied based on the percentage of points earned.

Grade Scale

Percent	Grade
93 – 100	A
90 – 92.99	A-
87 – 89.99	B+
83 – 86.99	B
80 – 82.99	B-
77 – 79.99	C+
73 – 76.99	C
70 – 72.99	C-
67 – 69.99	D+
63 – 66.99	D
60 – 62.99	D-
Below 60	F

It is important that you work to complete all portions of the course, you can see below how missing one activity in the course can quickly change your final grade in the course.

COURSE SCHEDULE

This course schedule is **tentative** and the course contents in this syllabus are subject to change during the semester. You can find the most current version on AsULearn.

Week	Week of	Monday	Wednesday	concept
Module 1 - AI (with business systems)				
1	Jan 13	Introduction of this course	AI introduction and exploration	AI to lay users
2	Jan 20	MLK Day	AI applications & Future opportunity, regulation, and ethical issues	AI application
3	Jan 27	Quiz 1 + AI agent (e.g., customized Copilot chatbot)	Why use AI in businesses? – Growing demands of AI and Analytics (lab#1 discussion with reading material)	AI agent
4	Feb 3	Data overview (structure, generation, collection, organization, etc. using spreadsheet)	Quiz 2 + Python introduction for analytics (using Google Colab, DataCamp)	AI basics - data analytics and Python
5	Feb 10	Data analytics with AI – intro and descriptive analytics (using GAI, i.e., ChatGPT, for code generation)	Data analytics 2 – diagnostics, predictive, and prescriptive analytics (lab#2 activity with python + ChatGPT)	AI advanced – data analytics
6	Feb 17	Quiz 3 + Data analytics 3 – whole process using a different case from Kaggle	Machine learning overview - in connection with data analytics - training and testing & accuracy metrics	AI advanced - machine learning 1
7	Feb 24	Machine learning 1 - supervised learning models (python + ChatGPT)	Machine learning 2 - unsupervised and reinforcement learning (lab#3 activity with python + ChatGPT)	AI advanced - machine learning 2
8	Mar 3	Quiz 4 + AI group project introduction + midterm Q&A	Midterm (in class)	Group project & Midterm
9	Mar 10	Spring break	Spring break	Spring break
10	Mar 17	AI with unstructured data- Text mining 1: concepts & individual data (python + ChatGPT)	AI with unstructured data - Text mining 2: bulk data (lab#4 activity with python + ChatGPT)	AI application on textual data
11	Mar 24	Quiz 5 + AI with unstructured data – Computer vision 1: concepts & individual data (python + ChatGPT)	AI with unstructured - Computer vision 2: bulk data (lab#5 activity with python + ChatGPT)	AI application on visual data

12	Mar 31	AI group project (oral) presentation	AI group project (oral) presentation	group project presentation	
Module 2 - Cybersecurity (with business systems)					
13	Apr 7	Business systems & cybersecurity intro	Quiz 6 + Cybersecurity fundamentals, security and access control	Business systems & cybersecurity	
14	Apr 14	Quiz 7 + Response: Incident response, business continuity, and disaster recovery (lab#6 discussion)	Quiz 8 + Computer networking security	Cybersecurity response & networking security	
15	Apr 21	Quiz 9 + Data security and basics of cryptography	Quiz 10 + Basics of cryptography hands-on learning (lab#7 activity)	Data security & cryptography	
16	Apr 28	Security policies & Wrap-up	Flex Class	Security policy & wrap-up	
17	May 2	Final Exam (May 2, Friday, online, tentative)			Final

NOTE: The instructor reserves the right to make modifications to the course schedule and syllabus.

SYLLABUS POLICIES

This course will be conducted in accordance with Appalachian State University's Syllabi Policy and Statement found at the following link: <https://academicaffairs.appstate.edu/resources/syllabi-policy-and-statement-information>

Please note, this includes policies related to

1. Academic Integrity
2. Disability Resources
3. Attendance Policy; Acceptable Student Absences from Class
4. Student Engagement

COURSE POLICIES

This course has the following supplemental policies specific to this course extending the Syllabus policies above. <https://academicaffairs.appstate.edu/resources-forms/syllabi-policy-and-statement-information>

Academic Integrity Code: Students attending App State agree to abide by the following code *(1) Students will not lie, cheat, or steal to gain academic advantage. (2) Students will oppose every instance of academic dishonesty.* Students shall agree to abide by the [Academic Integrity Code](#).

Disability Resources: App State is committed to providing an inclusive experience, accessible learning environments and equal opportunity to individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals needing reasonable accommodations should contact the Office of Disability Resources (828.262.3056 or odr.appstate.edu).

Student Engagement: In its mission statement, Appalachian State University aims at "providing undergraduate students a rigorous liberal education that emphasizes transferable skills and preparation for professional careers" as well as "maintaining a faculty whose members serve as excellent teachers and scholarly mentors for their students." Such rigor means that the foremost activity of Appalachian students is an intense engagement with their courses. In practical terms, students should expect to *spend two to three hours of studying for every hour of class time*. Hence, a fifteen-hour academic load might reasonably require between 30 and 45 hours per week of out-of-class work.

Make-up Policy and Late Work: By the nature of this class structure, late work will not be accepted. This includes all graded activities (e.g., exams, quizzes, assignments). Our course schedule will move quickly, so I encourage you to complete all graded activities on time.

It is your responsibility to begin graded activities early enough before their due date so that you can overcome any technological hurdles that may come between you and turning in your work fully completed and on time. These hurdles include but are not limited to; local PC problems, Internet connectivity problems, AsULearn connectivity, failure to obtain the material in time, etc.

Any uncoordinated unexcused graded activities result in a score of 0. No exceptions will be made unless there is a documented emergency or University documented and approved excuse that prevents participation at the scheduled times. Students missing graded activities (e.g., exams, quizzes, assignments) because of a university supported function (e.g., team travel) or other excused absence can make-up the work if arrangements are made at least one week prior to the due date of the activity. Make-up work will need to be completed within 48 hours of the activity's original due date and only verified official excuses will be accepted.

Extensions or exceptions to this policy will only be granted when unusual and unavoidable circumstances beyond your control occur. The judgment regarding if work can be turned in late for full or partial credit is at the sole judgment of the instructor. Documentation will be required to support any requests for an exception to these policies.

Classroom Etiquette and Professionalism: As a courtesy to others, please silence all electronic devices during class. Please do not use computers during class for extra-curricular activities. Please refrain from arriving to class late, departing class early and exiting/entering class at your leisure as these actions are considered poor classroom etiquette.

You must attend class and participate fully in-class activities. Each absence, or act of unprofessional conduct (including, but not limited to tardiness, sleeping in class, leaving/packing up early, wireless phone ringing, social media phubbing, etc.) will be noted.

You are expected to achieve course expectations by exhibiting the knowledge you have gained on course topics, do your fair share of work, and collaborate within teams, keep up with the assigned schedule, and approach this course in a professional manner. You will soon be entering a professional workplace. Your work ethic and behavior towards this class should be appropriate for that environment.

Attendance Policy: Class attendance is mandatory. If you feel that you will be unavailable over key portions of the course, please communicate with your instructor in least 48 hours or more in advance for any days you plan to miss. This includes excusable absences due to a university supported function (e.g., team travel), a private occurrence (e.g., death of a family member) verified through the dean of students, or if an absence is confirmed through me via email at least one week in advance of missing class. Students are responsible for collecting all appropriate notes from their peers for all days missed. Students with 3 unexcused absences will receive a failing grade in the course. Any students who show up 30 minutes after class begins are officially absent, resulting in no credit for attendance.

Grade Challenges: If a student would like to challenge their grade on completed work and/or exams, the ‘entire’ work will be reviewed. This may result in a net loss of points even if the problem motivating the challenge is correct. If a student challenges graded work more than twice without a change of grade, future challenges may be refused or require involvement of an intermediary at discretion of the instructor.

DIVERSITY AND COMMUNITY ACTIVITIES AT APPALACHIAN

Appalachian is committed to achieving and sustaining inclusive excellence for its campus community. In recent years, the university has made forward strides to ensure its campus is welcoming to all students. Contact the Diversity and Inclusion to know the upcoming events on campus at 828-262-2460 or diversity@appstate.edu and follow AppState Office of International Education & Development’s FB <https://www.facebook.com/AppStateOIED/> or Office of Community-Engaged Leadership <https://cel.appstate.edu/volunteer-contacts>.

Non-Discrimination Statement: Appalachian State University adheres to all federal, state, and local civil rights laws prohibiting discrimination in employment and education. Appalachian does not discriminate in its admissions practices, in its employment practices, or in its educational programs or activities on the basis of sex/gender. A report may be made at any time (including during non-business hours) by submitting the report online at titleix@appstate.edu

ALTERNATE OPTIONS FOR COMPUTER & SOFTWARE ACCESS

If in the event you are unable to use your personal computer to complete exercises requiring the specified software, you can use the university’s virtual machine available at the following website: <https://udesk.appstate.edu/>



TECHNICAL PROBLEMS

If you have a technical problem during any activity during this class, please contact IT Services at <https://support.appstate.edu/>.

EVENT FOR SPRING 2025 FOR EXTRA CREDITS

University Internship Fair

Wednesday, Jan 29, 11am – 2pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

AppITP Kick-Off Meeting

Wednesday, Jan 29, 5pm – 6pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

AppITP Guest Speaker Meeting #1

Wednesday, Feb 5, 5pm – 6pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

AppITP Guest Speaker Meeting #2

Wednesday, Feb 19, 5pm – 6pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

Women in Technology Dinner

Thursday, Feb 20, 6:00 p.m.

Kidd Brewer Stadium, Grandview Ballroom

Cyber Summit

Friday, Feb 21, 9 am – 6 pm

Kidd Brewer Stadium, Grandview Ballroom

University Job and Internship Fair

Wednesday, Feb 26, 12 pm - 3 pm

Holmes Convocation Center

Walker Spring Connect

Thursday, Feb 27, 1 pm - 4 pm

Holmes Convocation Center

For more information or to register to attend the event, please visit the [event website](#)

AppITP Guest Speaker Meeting #3

Wednesday, Mar 5, 5pm – 6pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

Boyles Distinguished Lecture

Friday, Mar 21, at 11 am

Holmes Convocation Center

For more information or to register to attend the event, please visit the [event website](#)

AppITP Guest Speaker Meeting #4

Wednesday, Mar 26, 5pm – 6pm

Grandfather Mountain Ballroom on the 1st floor of the Student Union

For a more complete list of activities in the Walker College, please visit business.appstate.edu.

HISTORY REVISIONS

- January 13 2025 – Version 1

***The instructor reserves the right, when necessary, to modify the schedule, change the examination or assignment dates, and modify course content. Modifications will be discussed and announced in class. Students are responsible for those changes. Absence from class does not excuse a student from missing any changes or updates.*

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