

## NBA4920/6921: AI for Business Applications

Spring 2025, Sections 1, 2, & 3

Instructor: Emaad Manzoor	TAs: Meng Yang, Mohammad Mosaffa
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Office Hours: Tue 1:30-2:30PM, 367 Sage Hall	TA Office Hours: See Canvas
<ul> <li>Meeting Location: Breazzano 123</li> <li>Meeting Times: All sections meet on Tue / Thu</li> <li>Section 1: 11:40AM - 12:55PM</li> <li>Section 2: 2:55PM - 4:10PM</li> <li>Section 3: 8:40AM - 9:55PM</li> </ul>	Instruction Modality: In-Person Prerequisites: None Website: <u>https://canvas.cornell.edu/courses/</u> 70995 (for all sections) Credits: 3

**Course Description:** With the availability of large, fine-grained traces of consumer behavior, artificial intelligence is increasingly deployed to automate various business analytics tasks. This course is focused on demystifying artificial intelligence by providing a high-level understanding of how artificial intelligence works, and what it can (and cannot) do well. The course will involve a mixture of lectures, lecture-style case studies, and hands-on exercises in class. There are no coding, math, or statistics prerequisites for this course.

**Course Learning Outcomes:** Upon completion of this course, you will be able to:

- Design evaluation frameworks for AI models guided by business goals.
- Identify business use-cases suited (and ill-suited) for artificial intelligence.
- Formulate business problems as AI problems.
- Build prototype low-code/no-code AI applications using low-code using the following algorithms: decision trees in RapidMiner, OpenAI GPT, text-based AI in Python
- Explain the key concepts underlying: algorithmic personalization, reinforcement learning, recommender systems, explainable AI, artificial intelligence alignment, fairness and bias, and other topics.

**Grading:** The grade average will not exceed 3.50 as per Johnson College policy. Based on prior iterations of this course, letter grades will *likely* be assigned based on the following table:

Proportion of Students	Letter Grade
Top 20% of the class	Α
Next 20% of the class	А-
Next 50% of the class	B+
Bottom 10% of the class	B or below, based on total score

A+ grades are not assigned in this class *except* in unusual circumstance (eg. a student scoring 100% over all graded components). B+ will be the most common grade. Minor variations in the proportion of students assigned to each letter grade are possible (eg. 52% of the class might receive a B+). Letter grades are assigned *relative* to other students across *all* sections; it is possible to obtain 95% points and receive an A- letter grade because over 20% of the students across all sections scored higher than 95%.

Graded components: Graded components in this course are:

- 1. *Homework assignments* [30%]: 3 group homework assignments, each contributing 10%.
- 2. *Mid-term exam* [30%]: Open-book/laptop in-class exam scheduled on February 20.
- 3. *Final group project* [40%]: Group project presented during the last week of class, contributing 40% towards the final grade.

**Planned course schedule:** The domain of artificial intelligence advances rapidly, so this schedule only serves as a sample of the topics we might cover and their possible sequence:

Module	Graded Deliverables	
Week 1: Introduction, Evaluating AI		
Week 2: Generative AI for Language		
Week 3: Generative AI and Private Knowledge	Homework I (due on February 14)	
Week 4: Finding and Framing AI Problems		
February Break (February 15 - 18)		
Midterm Exam (February 20, in class)		

Module	Graded Deliverables	
Week 5: Generative AI for Images and Audio		
Week 6: Human-AI Collaboration		
Week 7: Causal AI for Experimentation	Homework 2 (due on March 28)	
Week 8: Personalized AI for Recommendations		
Week 9: Project Brainstorming		
Spring Break (March 29 - April 6)		
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Week 10: Project Hackathons (in my office)	Note: We will <u>not</u> meet in class in Week 10	
<i>Week 10:</i> Project Hackathons (in my office) <i>Week 11:</i> Unsupervised AI	Note: We will <u>not</u> meet in class in Week 10	
Week 10: Project Hackathons (in my office) Week 11: Unsupervised AI Week 12: Reinforcement Learning & Alignment	Note: We will <u>not</u> meet in class in Week 10	
Week 10: Project Hackathons (in my office) Week 11: Unsupervised AI Week 12: Reinforcement Learning & Alignment Week 13: Explainable AI & Bias in AI	Note: We will <u>not</u> meet in class in Week 10 Homework 3 (due on May 9)	

**How Credit Hours are Met by the Course:** This class meets for two, 75-minute class periods each week for 14 weeks. Students are expected to work on course learning activities for about 3 hours out of the classroom weekly.

**Course Accommodations:** Your access in this course is important to me. Please request your accommodation letter early in the semester, or as soon as you become registered with SDS (<u>https://sds.cornell.edu/</u>), so that we have adequate time to arrange your accommodations.

- Once SDS approves your accommodation letter, it will be emailed to both you and me. Please follow up with me to discuss the necessary logistics of your accommodations.
- If you are approved for exam accommodations, please consult with me at least two weeks before the scheduled exam date to confirm the testing arrangements.
- If you experience any access barriers in this course, such as with printed content, graphics, online materials, or any communication barriers; reach out to me or SDS right away.
- If you need an immediate accommodation, please speak with me after class or send an email message to me and SDS at <u>sds\_cu@cornell.edu</u>.
- If you have, or think you may have a disability, please contact Student Disability Services for a confidential discussion: *sds\_cu@cornell.edu*, 607-254-4545, *sds.cornell.edu*.

**Inclusivity Statement:** This course aims to collectively create a welcoming, supportive and tolerant environment for all students and respects the various forms of diversity that they bring, including differences related to race, gender, sexuality, class, nationality, geography, age, size, ability, etc. Towards this purpose, I ask that we be respectful of each other, actively listen, participate, ask relevant questions, and give balanced, specific, and constructive verbal & written feedback to each other. Please let me know if there are circumstances affecting your ability to participate.

**Mental Health and Stress Management Resources:** If you are feeling overwhelmed, or are worried about a friend, please reach out to one of your instructors or your academic advisor. We can try to help or we can put you in touch with someone who can help. Cornell has trained counselors available to listen and help: Empathy, Assistance, and Referral Service (213 Willard Straight Hall, 607-255-3277), Cornell Health's Counseling and Psychological Services (CAPS, 607-255-5155), and Let's Talk. The Learning Strategies Center offers a range of academic resources. Notably, Cornell has recently invested a great deal of time and effort to offer more comprehensive support for our campus community. See <u>mentalhealth.cornell.edu</u> to learn more.

Academic Integrity: Each student in this course is expected to abide by the Cornell University Code of Academic Integrity and the Johnson Honor Code. Any work submitted by a student in this course for academic credit will be the student's own work. The Johnson Honor Code is available here: <u>https://www.johnson.cornell.edu/wp-content/uploads/sites/3/2021/10/</u> Johnson-Honor-Code-VD.pdf

**Intellectual Property:** As a graduate school of business education, Johnson places a tremendous value on intellectual property, defined as "any product of the human intellect that the law protects from unauthorized use by others". As a future business leader, you should respect and protect intellectual property at Johnson and the University, as well as within the community of business scholars. This is the same behavior that will be expected of you in your future organizations.

It is a theft of intellectual property to photocopy, scan, or otherwise unlawfully obtain course packets, course textbooks, solutions to assignments, etc., for this or any other Cornell class. It is also theft to distribute intellectual property without authorization (e.g. uploading assignments, answer keys, and/or exams to external websites, sharing exams or other materials with future students in the class or students in other programs). Stealing intellectual property or distributing intellectual property without authorization are considered violations of the Johnson Honor Code and of our community's ethical standards.