

Prompt Engineering with Generative AI

53:620:559:90 Term: Fall 2024 Mode of delivery: *online*

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Key Fall 2024 Dates :

Fall 2024 classes begin Last day to withdraw with a "W" Last day of classes Final Project period Tuesday, September 3rd Monday, November 11th Wednesday, December 11th Monday, December 16th - Saturday, December 21st

Course Description

Prompt Engineering with Generative AI (1 credit)

This seven-week course, taught by Tim Miner, an experienced educator in the field of Prompt Engineering, offers an advanced exploration into the art and science of Prompt Engineering. Over the past year, Tim has developed a unique approach to Generative AI, combining the groundbreaking concepts from Dr. Ethan Mollick's "Co-Intelligence" with his own original insights and practical techniques. The curriculum is designed to provide learners with both the theoretical knowledge and hands-on experience needed to master prompt engineering, all within the context of co-intelligence and real-world applications. This course is ideal for those seeking to harness the full potential of Generative AI, blending innovative strategies to reach new levels of productivity with critical insights. This will help the student accelerate in their career and lead others in this new competitive world of Artificial Intelligence.

Course Learning Objectives

Some of the skills I hope you will learn throughout the course include:

- 1. **Identify** advanced prompt crafting techniques to improve the accuracy and contextual relevance of Generative AI outputs.
- 2. **Analyze** the effectiveness of different prompt strategies (e.g., zero-shot, few-shot, chain-of-thought prompting) in various contexts and **compare/contrast** these strategies based on insights from *Co-Intelligence*.
- 3. **Evaluate** the outputs of Generative AI models to detect biases and inaccuracies, and **critically assess** potential areas for improvement using methodologies discussed in *Co-Intelligence*.

- 4. **Implement** debugging strategies to refine and enhance Generative AI responses, with a focus on ethical considerations and the limitations of AI technology.
- 5. **Design** tailored prompts for specific domains (e.g., education, customer service) that demonstrate a deep understanding of domain-specific requirements and the capabilities of Generative AI.
- 6. **Construct** and **test** complex prompts that require sophisticated manipulation of information, assessing their effectiveness in solving real-world problems.
- 7. **Synthesize** knowledge from the course to **create** a comprehensive final project that applies prompt engineering techniques to a practical industry problem, leveraging the interdisciplinary frameworks from *Co-Intelligence*.

School of Business-Camden Program Learning Goals

- Technology fluency,

- Critical Thinking

Course Materials:

<u>TEXTBOOK:</u> DO NOT BUY. TALK TO ME FIRST. The required textbook can be found in Canvas under "First Day Course Materials". You will be paying for it through your term bill. Co-Intelligence; Ethan Mollick; LCCN 2023049477 or Co-Intelligence; Ethan Mollick; ISBN 9780593716724 This text is used for class. Used copies and affordable online options are available.

COMMUNICATION and USE OF CANVAS

EMAIL- USE YOUR RUTGERS EMAIL ADDRESS

All communications to students will be done using the Rutgers email address provided to you. Please forward your Rutgers email to your personal email if necessary.

Not checking your Rutgers email is not an excuse for missing any communications.

CANVAS

Canvas is the learning management system used for this course. Posted will be the syllabus, resources, Power Point slides, announcements, guides, etc. To access this system, go to <u>http://canvas.rutgers.edu</u> log in, and click on the course in the dashboard. For technical support 833-648-4357 or <u>help@cam-den.rutgers.edu</u>.

Class Materials:

All class materials can be obtained via Canvas. Note that the PowerPoint class materials for a particular week will be posted by noon on Monday, usually one week ahead of schedule (except for the first week or two.) You are strongly encouraged to access this course via Canvas several times a week. You can imagine that the class seamlessly "runs" through from day 1 (Monday) to day 7 (Sunday).

Note that during the week, from Monday until Friday, I will try reply to all e-mails within 24 hours. Please do not expect immediate response. If you do not hear from me within 48 hours, please re-send your email as I may have overlooked or accidentally deleted your e-mail.

If you do not receive a response from me within the above listed time frame, please send the email again. I will do my best to adhere to these guidelines; I ask that you do the same if I contact you directly. While I will make every effort to be responsive to your needs, please be respectful of my availability.

CLASSROOM POLICIES

Exam, Quizzes, Assignment Make-up Policy

Make-up Work Policy: If, for a university-approved reason, you cannot complete a quiz, assignment, or exam during the scheduled time, you must give me written notice via email (tim.miner@rutgers.edu) at least one week in advance so that other arrangements can be made. If the situation does not allow for advance notification (e.g., emergency hospitalization), contact me as soon as possible after the missed work and provide written documentation. The ability to make up work for non-university approved reasons is not guaranteed. The professor reserves the right to request written documentation to support your absence (such as a doctor's note, an obituary, or military orders).

<u>:</u> All work must be completed and uploaded to Canvas by the specified due date (with the exception <u>Late</u> <u>Work Policy</u> of a university-approved, documented, and professor or Dean of Students verified reason; see Make-up Work Policy above). Any work submitted late, will receive a grade that is 5% less per day that it is late. By the time 20 days has expired, the assignment will receive a 0 points grade.

<u>Incompletes:</u> "Incompletes" will only be given through prior consultation, under extreme circumstances, and when completion of the course requirements in question would substantially improve your grade. In the rare event when an "incomplete" is given, you must submit all of the agreed-upon work to me by the Rutgers registrar deadline to avoid the "incomplete" converting to an "F": https://registrar.camden.rut-gers.edu/gradeinstruction#incomplete.

Assessments

CLASS PARTICIPATION: It is expected that you will (1) attend class regularly and arrive on time, (2) listen attentively in class, and (3) contribute often to class discussions. Your in-class comments should be thoughtful and should reflect your careful reading of the assigned course material.

- **QUIZZES-** there will be a quiz to complete each week. Should the quiz be completed late, the grade received will be 5% less per day that the quiz is completed late. After 20 days, the quiz will receive 0 points.
- **ASSIGNMENTS -** there will be an assignment each week of the semester. The assignments are due on the due stated in Canvas. Should the assignment be completed late, the grade received will be 5% less per day that the assignment is late. After 20 days the assignment will receive 0 points.

DISCUSSION BOARD ACTIVITY - There will be five discussion board activities in this course. Discussions will pertain to that week's reading. Discussion points added must be substantive comments of no less than three full sentences. Discussions entries are due on the due date in Canvas. Late discussion entries will receive 5% less of the possible grade. After 20 days the discussion will receive 0 points.

Course Grading

The total points achievable for completing all work on time and with proper effort is 1000 points. The assignment of final grades, the course requirements will be weighted approximately as follows:

5 Weekly Assignments	.30%
5 Weekly Quizzes	.20%
5 Discussions	.30%
Project (Part 1 & Part 2)	.20%

Final Grade Ranges

A Highest grade (90% and above) B+ Work of distinction (84.5% to 89.4%) B Work of distinction (79.5% to 84.4%) C+ Average work (74.5% to 79.4%) C Average work (69.5% to 74.4%) F Failure without credit (Below 69.5%)

Disability Services/Accommodations

The University is committed to supporting the learning of all students and faculty will provide accommodations as indicated in a Letter of Accommodation issued by the Office of Disability Services (ODS). If you have already registered with ODS and have your letter of accommodations, please share this with me early in the course. If you have or think you have a disability (learning, sensory, physical, chronic health, mental health or attentional), please contact <u>https://success.camden.rutgers.edu/disability-services.</u>

Accommodations will be provided only for students with a letter of accommodation from ODS. Their services are free and confidential. Letters only provide information about the accommodation, not about the disability or diagnosis.

Academic Integrity

The Academic Integrity policy can be found at https://studentconduct.rutgers.edu/processes/university-code-student-conduct http://studentconduct.rutgers.edu/student-conduct.rutgers.edu/student-conduct.rutgers.edu/student-conduct-processes/academic-integrity/

Students are responsible for understanding the principles of academic integrity and abiding by them in all aspects of their work at the University. Students are also encouraged to help educate fellow students about academic integrity and to bring all alleged violations of academic integrity they encounter to the attention of the appropriate authorities.

Academic Integrity means that you (the student) must:

- •properly acknowledge and cite all use of the ideas, results, or words of others,
- •properly acknowledge all contributors to a given piece of work,
- •make sure that all work submitted as your own in a course activity is your own and not from someone else
- •obtain all data or results by ethical means and report them accurately
- treat all other students fairly with no encouragement of academic dishonesty

Adherence to these principles is necessary in order to ensure that:

- •everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments
- •all student work is fairly evaluated, and no student has an inappropriate advantage over others
- •the academic and ethical development of all students is fostered
- •the reputation of the University for integrity is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students.

Artificial Intelligence Use

Use Encouraged and Permitted

You are expected to use generative AI tools (e.g. ChatGPT, Dall-e, etc.) in this class as doing so aligns with the course learning goals. You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty.

Code of Student Conduct

Rutgers University-Camden seeks a community that is free from violence, threats, and intimidation; is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and does not threaten the physical or mental health or safety of members of the University community, including in classroom space.

As a student at the University, you are expected adhere to the Code of Student Conduct. To review the code, go to the Office of Community Standards: <u>https://deanofstudents.camden.rutgers.edu/student-conduct</u> Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."