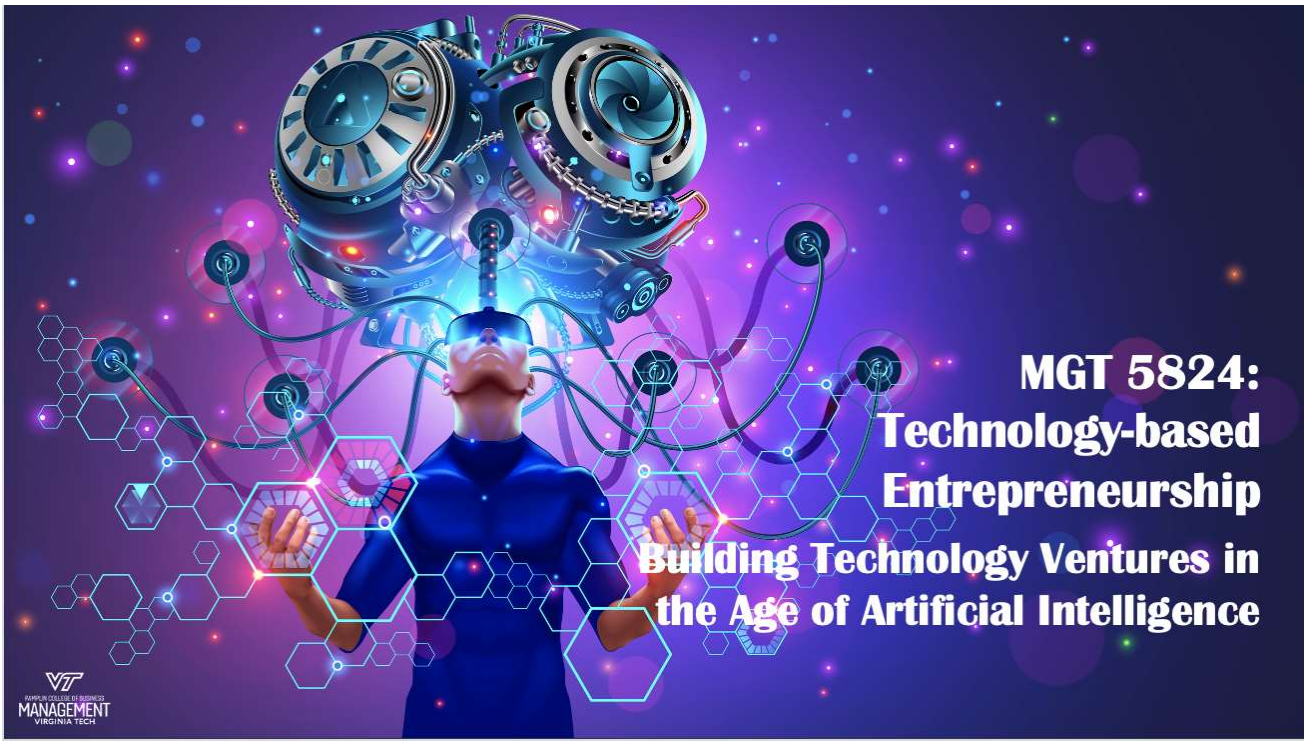
# Course Syllabus

A .pdf version of the revised syllabus can be downloaded here: **MGT 5824 Syllabus Sum 23 Final.pdf (https://canvas.vt.edu/courses/172719/files/28724560?wrap=1)**

**MGT 5824**

**TECHNOLOGY-BASED ENTREPRENEURSHIP**

**Summer 2023**




**Professor:** David Townsend, Ph.D. (Faculty Lead)

**Classroom:** Canvas (100% Virtual)

**Office:** Pamplin Hall, Room 2090

**Office Hours:** Thursdays from 800-930 PM. Or By Appointment

**Telephone:** (540) 231-4553 (Best to email to receive a timely response)

**E-mail:** dtown@vt.edu (mailto:dtown@vt.edu)

**Web Page:** http://canvas.vt.edu/: Lectures, case discussions, course announcements, and other required materials are provided via the class site on Canvas.

**Texts:** Course materials can be purchased directly from Harvard Business School Press.

Please refer to the course resource page for updated lists of required and optional tools. All remaining materials will be provided for free by Dr. Townsend.

## COURSE DESCRIPTION

The rapid evolution of artificial and machine intelligence is creating immense economic and social opportunities for startups, corporate, and public sector innovators. The purpose of this class is to equip students with the tools, frameworks, and strategies for building leading-edge, AI-focused ventures designed to pursue these opportunities across of variety of organizational forms including commercial startups, internal corporate initiatives, and public sector ventures. Experiential learning activities will be used to support the development of commercialization strategies designed to pursue these opportunities.

The course is organized around a foundational process model of entrepreneurship that blends elements of established frameworks (e.g., customer discovery and JTBD) with emerging developments in AI-powered operating models. Research indicates that between 33-50% of all new ventures will fail within their first few years of operations. One of the key reasons these ventures fail is that they are building products and services that their future customers do not want or need. In previous courses, we have discussed how key differences in the preferences of customers along the technology adoption lifecycle shape how they respond to new technologies. The AI-powered processes we will use in this course build on these insights in a structured, iterative process of engaging with customers in order to determine their critical needs and wants in order to reduce the overall rate of failure.

We will apply these processes to the context of commercializing advanced new AI-powered technologies such as machine learning, blockchain, and other related digital technologies. Although these digital technologies provide powerful new tools for creating value for customers, the technologies must be designed effectively to reach early adopters. The successful commercialization of these technologies must also be complemented with appropriate business models in order to ensure the long-term economic viability of the venture. Towards this end, we will explore not only how to commercialize new AI-powered technologies but also how AI tools will transform the business venturing process by providing new tools for solving important problems entrepreneurs face when creating and scaling new ventures.

This course will extensively use various experiential learning exercises such as dynamic simulations, customer interviews, venture pitches, etc. to create an active learning environment where every student will have the opportunity to develop and practice new skills that are essential to the business venturing process.

I will not assume that you are walking in the door as an “expert” in the process of entrepreneurship. Nor do I assume that every student is interested in starting their own venture (whether in their current organization or by starting a new one). However, the knowledge and skills you will acquire in this course will be invaluable to you in your career as you continue to explore new opportunities to leverage

emerging new technologies to create new sources of value for yourself, your customers, and society-at-large.

**The course goals consist of the following:**

1. Enable students to identify and understand the unique strategic challenges associated with creating and scaling entrepreneurial ventures with a specific emphasis on automation and artificial intelligence (G1)
2. Equip students with concepts, tools, and frameworks at the intersection of the lean startup process and augmented with AI-powered digital technologies to tackle key challenges throughout the entrepreneurial process (G2)
3. Empower students with an entrepreneurial mindset to design and implement innovative automation and AI technologies and business models to create new sources of value of future customers (G3)

**Course Objectives** (parentheses represent course goals noted above)

Upon completion of the course, the students will be able to:

- Assess commercial potential of disruptive AI-powered technologies (G1, G2)
- Utilize AI-powered experimentation processes to validate AI opportunity spaces (G2)
- Create a product development roadmap for AI-powered products and services (G2, G3)
- Design resource mobilization strategies for AI-powered ventures (G2)
- Integrate AI-powered commercialization strategies into scalable digital business models (G2)
- Build and grow AI-powered digital startups, corporate, and public ventures (G2, G3)

**Course Prerequisites**

Graduate Status Required, GPIT/MIT course, Pamplin MBA elective, Completion of MGT 5804 (and/or ECE 5584)

**Required Technical Skills or Knowledge Proficiencies**

General word-processing, presentation skills, general technical skills.

You are not required to be proficient in any specific technical area in order to complete this course effectively.

**Grading**: Points will be assigned based on your performance on the following activities:

| Course Grading: | |
|---|---|
| Administrivia (Individual): | 50 pts. |
| Quizzes (Individual – 10*10 pts/each): | 100 pts. |
| Simulation (Individual): | 50 pts. |
| Initial Concept Pitch (Team/Individual): | 100 pts. |

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|---|---|
| Venture Process Milestones (Team/Individual): | 450 pts. |
| Final Venture Pitch (Team/Individual): | 250 pts. |
| **Course Total:** | 1000 pts. |

**Grading Scale (points):**

| | | | | |
|---|---|---|---|---|
| 930-1000 = A | 870-899.9 = B+ | 770-799.9 = C+ | 670-699.9 = D+ | 0-599.9 = F |
| 900-929.9 = A- | 830-869.9 = B | 730-769.9 = C | 630-669.9 = D | |
| | 800-829.9 = B- | 700-729.9 = C- | 600-629.9 = D- | |

**As the Instructor for this course, I reserve the right to curve final grades based solely on my assessment of overall class performance (I will not curve grades on individual assignments). This does not mean that I WILL curve grades, but simply that I reserve the right to do so.

**Administrivia:**

We will have several short administrative assignments throughout the course so we can collect information and organize class activities. In general, these assignments will be assessed as completion grades (i.e., complete or not). More details will be provided when the assignments are posted and are due.

**Simulation:**

We will conduct one entrepreneurship simulation in the course. The goal of this simulation is to help frame the challenges of building and growing new ventures under conditions of uncertainty. The simulation will reflect decision-making in the “real world” by showing you the consequences of your decision-making in a dynamic setting. Because these activities provide an objective measure of the application of course content to a defined strategic problem, grades will be assessed based on your performance in the game.

**Quizzes:**

In lieu of a comprehensive final exam, your understanding of course material will be assessed through weekly short quizzes. You will need to complete 10 of the 11 assigned quizzes for the semester in order to earn 100 points.

**Venture Pitches:**

One of the key skills in entrepreneurship is the ability to communicate your venture concepts clearly in order to mobilize social support and other critical resources. You will conduct two pitches during the course. The initial pitch will be completed by each individual student. The focus of the first pitch is on identifying a venture concept that might serve as the basis for the class project. The final venture pitches

will be completed by each venture team and will be comprised of the comprehensive integration of the work over the semester into a final venture pitch.

**Venture Process Milestones**:

The major activities in the course are organized around several major 'milestones' marking key stages of the entrepreneurial process we will cover this semester. These assignments will be either formative or reflective based on the specific learning objectives for each assignment. More details will be provided in each module regarding these milestones and the specific requirements for completing and submitting the work. You will complete all of the milestones either individually or as a team over the semester in order to possibly earn full points on these assignments.

**Reading Articles:**

The following link will take you to an outside site (Harvard Business School Press) where you can purchase access to several of the assigned reading articles, books, and simulation assigned this semester. Harvard provides digital access to their articles with substantially discounted student pricing only if you utilize the following link and register with them directly. You'll have to do this anyway to access both the simulations and cases, so please make sure you do so at the beginning of Module 1:

**https://hbsp.harvard.edu/import/1058505 (https://hbsp.harvard.edu/import/1058505)**

**"Asynchronous" and "Synchronous" Class Activities**

We will utilize a combination of asynchronous and synchronous class activities for each module. Most of the lectures and background materials for each module will be delivered "asynchronously" meaning that you can view/complete these activities each week on your own schedule. We will also conduct weekly "synchronous" sessions covering each of the experiential learning activities in each module on Zoom. These sessions will be conducted on Thursday evenings from 8-930 PM. Students are *not required to attend* but are **strongly encouraged to attend** these live sessions each week. During the sessions, we will cover the material in the weekly modules and provide live instruction and opportunities for each student to start working on the required worksheets or other assigned activities. These sessions will be recorded and posted to Canvas once the videos are finished processing. Students who are unable to attend the sessions can view these sessions later in order to complete the weekly assignments.

**COURSE POLICIES AND PROCEDURES**

**Academic integrity**

Academic integrity is essential to the educational process. Academic dishonesty in any form will not be tolerated in this course – whether on exercises, assignments, tests, extra credit, appeals, etc. The Virginia Tech Graduate College Honor Code will be strictly enforced in this course (for more information see:https://graduateschool.vt.edu/academics/expectations/graduate-honor-system.html). Copying or adapting other students' work constitutes plagiarism and will not be tolerated. All assignments submitted shall be considered graded work unless otherwise noted. All aspects of your coursework are covered by

the Honor System. Honesty in your academic work will develop into professional integrity. **Any form of academic dishonesty will result in "0" on the assignment and automatic referral to the VT Honor System.**

Seriously, please use the utmost care in developing your work product. Every assignment will be checked through our plagiarism detection software and any suspected plagiarism will be reported immediately to the Graduate Honor System once it is discovered.

**Course Web site**

All communications for this course will be conducted primarily on Canvas. Accordingly, reminders, updates, clarifications, and so forth will be posted regularly as announcements on the course Web site on Canvas. Please check this site and/or syllabus before contacting the instructor with a problem or question – it may have already been addressed, and you will get the information you need much more rapidly. You can also use the class discussion board to solicit or share information with your classmates.

**Required Technologies**

All submitted documents and submissions will need to submitted utilizing Microsoft Office (.docx or .pptx) or .pdf file extensions. Unfortunately, my fellow mac users, I cannot accept .pages or any other file format that is not compatible with the above file extensions. Please note that it is the responsibility of every student to ensure that all submitted documents are formatted properly with the above file extensions. If you submit a document on time but with a file extension that I cannot open, the submission will unfortunately not be evaluated or graded. Furthermore, due to the incredibly fast pace of this course, late assignments (without prior approval from Dr. Townsend) will not be accepted past the assigned deadline.

Second, I am not requiring but I do **strongly encourage** you to **USE** generative AI tools in the class (yep, you read that right!). Please consider purchasing a subscription to ChatGPT+ ($20/month). I have also set up a course account that will provide you with free access to Figma to use for prototype design. You are welcome to use any other generative AI tools in the course. The only requirement is that you fully disclose how you used these tools, including full technical prompts, etc. Please refer to the Generative AI Course Guidelines in Canvas for more details.

**Course Privacy Policy**

Student educational records are protected by the Family Educational Rights and Privacy Act (FERPA). These rights apply to all students age 18 and above. It may benefit you to know your FERPA rights so that you can best protect your own educational records. Please visit the **Office of the University Registrar's Privacy Page (https://registrar.vt.edu/FERPA.html)** for more information.

**Accommodations for students with disabilities**

The Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990 mandate that faculty provide reasonable accommodations to students with documented disabilities.

Reasonable accommodations will be made for students with verifiable disabilities. Students who believe that they have a covered disability should ensure that this is documented with the University and contact the instructor within the first week of the semester. Please click on the following link to learn how to register a disability with the SDD Office at VT: https://ssd.vt.edu. I will do anything I can to ensure that each student is provided with the best opportunity to be successful in this class. If there is anything you think I need to know before the semester begins, please contact me ASAP!

**Course Support**

Technical: The professor for this course does not provide technical support. Requests for technical support and/or Canvas support can be directed to 4Help by calling (540) 231-HELP (4357).

Classroom Accessibility: Any student who has been confirmed by the University as having course accommodations must notify me as soon as possible, preferably during the first week of the course. For more information please go to the **Services for Students with Disabilities website (https://www.ssd.vt.edu/)** .

Academic Support Services: Any student requiring academic support should investigate the Graduate School's **Support Resources (https://graduateschool.vt.edu/student-life.html)** .

For complete information on student services at Virginia Tech, please visit the **website for the Division of Student Affairs (https://students.vt.edu/)** .

**COURSE EVALUATIONS**

Online course evaluations will be available for students to complete during the last few weeks of class. Students will receive an email message directing them to a website where they can login using their PID and complete course evaluations for all courses for which they are registered this semester. All evaluations are confidential; instructors do not have access to individual student responses and, students will not have access to individual instructor ratings. I strongly encourage you to complete the SPOT evaluation as student feedback is instrumental in helping us improve this course!

**ABOUT YOUR PROFESSOR**

**David Townsend** is the Schulze Distinguished Professor of Entrepreneurship and the Union Junior Faculty Fellow in Entrepreneurship and Academic Lead for entrepreneurship programs in the Pamplin College of Business at Virginia Polytechnic Institute & State University. Dr. Townsend teaches courses primarily in the entrepreneurship, technology strategy, and innovation management areas. Prior to joining the faculty at Virginia Tech, Dr. Townsend served as an Assistant Professor in the Jenkins Graduate School of Management at NC State University and the University of Oklahoma where he taught courses in entrepreneurship, global strategy, and technology management. In addition to teaching classes, Dr. Townsend advises a variety of start-ups in diverse industries such as mobile/online gaming, web/app development, healthcare, big data/analytics, AI/deep learning, micro-distilleries, etc.

Dr. Townsend conducts research at the intersection of artificial intelligence and entrepreneurship and technology strategy. He and maintains an active publishing stream in most of the top entrepreneurship and management academic journals. Dr. Townsend also serves as a Senior Editor of EIX.org, a leading research translation site bridging academic and practitioner communities in entrepreneurship. He also serves as a guest commentator on entrepreneurship themes on NPR and on other public media forums, and some of his research has been highlighted in business-oriented press outlets such as Gigaom.com/The New York Times.com, BusinessWeek, TechCrunch, TechJournal South, WalletHub among many others.

Dr. Townsend is a native of Virginia and graduated from Tabb High School in Yorktown, VA.

**Course Schedule**

| **Week** | **Topic** | **Readings** | **What's Due:** |
|---|---|---|---|
| May 22 – May 28 | Course Introduction: Technology Entrepreneurship in the Age of Artificial Intelligence | Syllabus<br>Reading Set 1:<br>Experimenting in the Entrepreneurial Venture IM: Intro – Cha. 3 | Module 1<br>Quiz 1<br>Entrepreneurship Simulation: The Food Truck Challenge |
| May 29 – June 4 | Course Introduction (Part 2): Technology Entrepreneurship in the Age of Artificial Intelligence | Reading Set 2:<br>Plan B: Cha. 2 – 3<br>Value Lab (pdf in Module) | Module 2<br>Quiz 2<br>Venture Concept Pitch |
| June 5 – June 11 | CD Process: Customer Discovery & the Entrepreneurial Process | Reading Set 3:<br>JTBD Toolbox<br>IM: Cha. 4 | Module 3<br>Quiz 3 |
| June 12 – June 18 | CD Process: Generating New Insights through Customer Discovery | Reading Set 4:<br>Test the Problem (pdf in Module)<br>JTBD & AI (pdf in Module) | Module 4<br>Quiz 4 |

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|---|---|---|---|
| June 19 – June 25 | CD Process: Validated Learning & Customer Insights | Reading Set 5:<br>Analyzing JTBD Interviews (pdf in Module)<br>Learning from Extreme Customers | Module 5<br>Quiz 5<br>Milestone #1: Validated Customer Problems & JTBD |
| June 26 – July 2 | Prototype Design: Translating Customer Insights into Prototypes | Reading Set 6:<br>IM: Cha. 5<br>Robot: Cha. 1 | Module 6<br>Quiz 6 |
| July 3 – July 9 | Prototype Design: Designing Task Environments & Social Affordances | Reading Set 7:<br>Robot: Cha. 2-4 | Module 7<br>Quiz 7 |
| July 10 – July 16 | Prototype Design: Designing AI Task Environments & Technology Stacks | Reading Set 8:<br>Robot: 5-6<br>How Smart Connected Products are Transforming the Competition | Module 8<br>Quiz 8<br>Milestone #2: Venture Solution Prototype & Social Affordances |
| July 17 – July 23 | Bus. Model Design: Designing Business Models | Reading Set 9:<br>IM: Cha. 6-7<br>Plan B: Cha. 3 | Module 9<br>Quiz 9 |
| July 24 – July 30 | Bus. Model Design: Building Scalability into AI Business Models | Reading Set 10:<br>IM: Cha. 8<br>Plan B: Cha. 4-5 | Module 10<br>Quiz 10 |

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|---|---|---|---|
| | | | |
| July 31 – Aug 6 | Bus. Model Design: Resource Mobilization & AI Business Models | Reading Set 11:<br>Plan B: Cha. 6-7 | Module 11<br>Quiz 11<br>Milestone #3: Business Model Design & AI-powered Operating Models |
| Aug 7 – Aug 13 | Final Pitches: Technology-based Entrepreneurship in the Age of Artificial Intelligence | Reading Set 12:<br>Plan B: Cha. 8-9 | Module 12<br>Final AI Venture Pitch |

# Course Summary:

| Date | Details | Due |
|---|---|---|
| Thu May 25, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1192997&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1192998&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1192999&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198379&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun May 28, 2023 | Quiz #1 (https://canvas.vt.edu/courses/172719/assignments/1776564) | due by 11:59pm |
| | Simulation Analysis | due by 11:59pm |

| Date | Details | Due |
|---|---|---|
| | (https://canvas.vt.edu/courses/172719/assignments/1776575) | |
| | Student Introduction Video (https://canvas.vt.edu/courses/172719/assignments/1776576) | due by 11:59pm |
| Thu Jun 1, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193000&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193001&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198380&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jun 4, 2023 | Quiz #2 (https://canvas.vt.edu/courses/172719/assignments/1776569) | due by 11:59pm |
| | Venture Concept Pitch (https://canvas.vt.edu/courses/172719/assignments/1776574) | due by 11:59pm |
| Thu Jun 8, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193002&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193003&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198381&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jun 11, 2023 | Quiz #3 (https://canvas.vt.edu/courses/172719/assignments/1776567) | due by 11:59pm |
| Thu Jun 15, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193004&include_contexts=course_172719) | 8pm to 9:30pm |

| Date | Details | Due |
|---|---|---|
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193005&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198382&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jun 18, 2023 | Quiz #4 (https://canvas.vt.edu/courses/172719/assignments/1776565) | due by 11:59pm |
| Thu Jun 22, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193006&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198383&include_contexts=course_172719) | 8pm to 9:30pm |
| Sat Jun 24, 2023 | VT SPOT (https://canvas.vt.edu/calendar?event_id=1192996&include_contexts=course_172719) | 12am |
| | VT SPOT (https://canvas.vt.edu/calendar?event_id=1193008&include_contexts=course_172719) | 12am |
| Sun Jun 25, 2023 | Quiz #5 (https://canvas.vt.edu/courses/172719/assignments/1776563) | due by 11:59pm |
| | Milestone #1: Validated Customer Problems & JTBD (https://canvas.vt.edu/courses/172719/assignments/1776582) | due by 11:59pm |
| Thu Jun 29, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1193007&include_contexts=course_172719) | 8pm to 9:30pm |
| | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198384&include_contexts=course_172719) | 8pm to 9:30pm |

| Date | Details | Due |
| --- | --- | --- |
| Sun Jul 2, 2023 | Quiz #6 (https://canvas.vt.edu/courses/172719/assignments/1776568) | due by 11:59pm |
| Thu Jul 6, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198385&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jul 9, 2023 | Quiz #7 (https://canvas.vt.edu/courses/172719/assignments/1776570) | due by 11:59pm |
| Thu Jul 13, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198386&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jul 16, 2023 | Quiz #8 (https://canvas.vt.edu/courses/172719/assignments/1776562) | due by 11:59pm |
| | Milestone #2: Venture Solution Prototype & Social Affordances (https://canvas.vt.edu/courses/172719/assignments/1776586) | due by 11:59pm |
| Thu Jul 20, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198387&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jul 23, 2023 | Quiz #9 (https://canvas.vt.edu/courses/172719/assignments/1776571) | due by 11:59pm |
| Thu Jul 27, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198388&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Jul 30, 2023 | Quiz #10 (https://canvas.vt.edu/courses/172719/assignments/1776561) | due by 11:59pm |
| Thu Aug 3, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198389&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Aug 6, 2023 | Quiz #11 (https://canvas.vt.edu/courses/172719/assignments/1776566) | due by 11:59pm |

| Date | Details | Due |
| --- | --- | --- |
| | Milestone #3: Business Model Design & AI-powered Operating Models (https://canvas.vt.edu/courses/172719/assignments/1776585) | due by 11:59pm |
| Thu Aug 10, 2023 | Tech-based Entrepreneurship (https://canvas.vt.edu/calendar?event_id=1198390&include_contexts=course_172719) | 8pm to 9:30pm |
| Sun Aug 13, 2023 | Final Venture Concept Pitch (https://canvas.vt.edu/courses/172719/assignments/1776573) | due by 11:59pm |
| | Venture Feedback (https://canvas.vt.edu/courses/172719/assignments/1776572) | |