

MOLLOY UNIVERSITY

School of Education and Human Services

Department of Teacher Education

Title: Echoes of Innovation: 5,000 Years of Science and Engineering (3 credits)

EDU 5900 xxx

Fall 2026

Instructor: William Behrens

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Office Hours: Upon Request

Course Description:

Uncover the roots of modern technology by exploring 5,000 years of global scientific progress. This course charts the dramatic evolution of human ingenuity, from the practical inventions of ancient civilizations to the breakthrough discoveries that shape our contemporary world. Students will analyze how diverse cultures solved complex problems, transformed societal infrastructure, and laid the groundwork for modern STEM disciplines. Designed for curious minds across all grade levels and disciplines, this interactive journey reframes historical progress through the lens of scientific discovery and engineering triumph.

***This course may be used as the first of three courses towards a certificate in XXX**

Shared Vision:

The Molloy University Teacher Education faculty has derived its vision for the exemplary teacher from the University's mission statement, the four pillars of the Dominican tradition, comments and input from the Professional Education Unit's Advisory Board and degree candidates as well as numerous faculty discussions rooted in the department's knowledge base which undergirds the initial and advanced programs' curriculum, pedagogy, and values.

The teaching professionals who complete Molloy's teacher preparation programs are distinguished by their ability to exemplify and promote core values in their own teaching. These values include:

- Belief that all children can learn
- Learner-centered and value-centered curriculum and pedagogy ● Ethics and spirituality
- Intellectual curiosity
- Independence and risk-taking, while promoting collective identity and responsibility
- Diversity, multiculturalism, and pluralism, including divergent thinking ● Passion for teaching
- Commitment to students and their communities
- Civic responsibility through the promotion of social justice and interdependence ● Commitment to democracy

Course Objectives:

1. Analyze the architectural and engineering systems that ancient societies developed to scale their infrastructure.
2. Evaluate how different global civilizations independently solved parallel technological challenges.
3. Construct a chronological matrix mapping pivotal scientific breakthroughs across human history.
4. Replicate a historically accurate, functional tool using core engineering principles from the course
5. Contrast the engineering methodologies of an ancient civilization with modern production techniques.

Course Format:

This course will be offered online through Canvas, Molloy's learning management system. The course will open two days before the start date and close one week after the last day of class. This section is offered XXXX (list dates). There will be daily activities and discussions that must be completed by the due dates given . Discussion prompts will be due every other day Extra time to complete the final assessment project will be given as needed.

Required Readings, Videos, and Other Materials:

All materials will be provided throughout the course.

Course Requirements and Evaluation:

Discussion # 1: Foundations of Discovery (3pts)

Module # 1: Cradle of Innovation – Mesopotamia and the Sumerians (7pts)

Module # 2: Engineering the Nile – Ancient Egypt (7pts)

Module # 3: Mathematics and Monuments – The Mayans (7pts)

Module # 4: Silk, Steel, and Seismographs – Ancient China (7pts)

Discussion # 2: Celestial Mechanics & Early Astronomy (4pts)

Module # 5: Philosophy, Physics, and Geometry – The Ancient Greeks (7pts)

Module # 6: Infrastructure and Imperium – The Romans (7pts)

Module # 7: Alchemy, Architecture, and Agrarian Shifts – The Middle Ages (7pts)

Module # 8: Hydraulic Engineering and Urban Design – The Aztecs and Incas (7pts)

Discussion # 3: Ethics of Advancement & Technological Responsibility (4pts)

Module # 9: The Scientific Renaissance – Rebirth and Reimagining (7pts) Module #

10: The Age of Automation – The Industrial Revolution (7pts)

Discussion # 4: Catalysts of Change – Top Ten Historical Innovations (4pts)

Final Project: Curriculum Design – Interactive Lesson Plan (15pts)

Molloy University and School of Education and Human Services Policies and Supports:

Expectations of Academic Integrity for All Students

[Honor Pledge and Academic Honesty Policy](#)

Course Withdrawals

View [Withdrawal Policy](#) for potential financial implications

View [the Academic Calendar](#) and/or the course syllabus for the last day to withdraw dates

Incompletes

[Incompletes Policy](#)

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Health and Wellness

[Student Health Services](#)

[Student Counseling Center \(SCC\)](#)

Center for Access and Disability (Access)

[Center for Access and Disability](#)

Technical Support

[Student Account, Technology, and Canvas](#)

Ally for Canvas

[Supportive Tools and Resources/ Ally](#)

Use of Proctorio for Exams/Quizzes (if applicable)

[Proctorio Resources for Students](#)

Email Accounts

Students are expected to communicate via their Molloy email account or through Canvas throughout the semester. Those who use a non-Molloy account may miss important messages. Students are responsible for responding to all forms of communication related to this course in a timely manner. Instructors will respond to emails from students within 24 hours. When emailing the instructor(s), please include the course number and section you are enrolled in.

APA Manuscript Style

All manuscripts in the field of education are written in the style format of the American Psychological Association. Candidates in the Graduate Education Programs are required to purchase the Publication Manual of the American Psychological Association (7th ed.). (2010).

American Psychological Association.

All papers written in every course must adhere to the manuscript prescriptions defined in this manual.