HIST133 : History Of Science

General Information

Author:	• Michelle Stonis • Ramos, Hazel • Fishman, Robyn • Fishman, Robyn
Course Code (CB01) :	HIST133
Course Title (CB02) :	History Of Science
Department:	HIST
Proposal Start:	Fall 2025
TOP Code (CB03) :	(2205.00) History
CIP Code:	(54.0101) History, General.
SAM Code (CB09) :	Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	Yes
Course Control Number (CB00) :	CCC000015468
Curriculum Committee Approval Date:	11/27/2024
Board of Trustees Approval Date:	01/21/2025
Last Cyclical Review Date:	11/27/2024
Course Description and Course Note:	HIST 133 is a seminar, colloquial-style discussion that examines the forces in history that led to the development of the scientific method and the relevance of the idea of Scientific Revolutions. Students explore the development of science in Western civilization. Topics include how science is impacted by socio-political developments, race, and gender while presenting an overview of key turning points such as the Copernican Revolution, the Newtonian Revolution, the Darwinian Revolution, Pasteur and the medical revolution, and the Einstein Revolution. Take this course to understand how major shifts in scientific thinking have shaped modern industrialized society and its culture.
Justification:	Mandatory Revision
Academic Career:	• Credit
Mode of Delivery:	• In-Person • Remote • Hybrid • Online
Author:	No value
Course Family:	No value

Academic Senate Discipline

Primary Discipline:	• History

Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

IGETC Area	Area	Status	Approval Date	Comparable Course
3B-Humanities	Humanities Courses	Approved	09/09/1991	No Comparable Course defined.
4-Social Sciences	Social Sciences	Approved	08/28/2023	

CSU GE-Breadth Area	Area	Status	Approval Date	Comparable Course
C2-Humanities	Humanities: (Literature, Philosophy, Languages Other than English)	Approved	08/28/2023	No Comparable Course defined.
D-Social Sciences	Social Sciences	Approved	09/09/1991	

Units and Hours

Summary

Minimum Credit Units (CB07)	3
Maximum Credit Units (CB06)	3
Total Course In-Class (Contact) Hours	54
Total Course Out-of-Class Hours	108

Total Student Learning Hours 162

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	3	6
Laboratory Hours	0	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	54
Laboratory	0
Studio	0
Total	54
Course Out-of-Class Hours	
Lecture	108
Laboratory	0
Studio	0
Total	108

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

Advisory

ENGLC1000 - Academic Reading and Writing (in-development)

Objectives

- Analyze stylistic choices in their own writing and the writing of others.
- Write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence.
- Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.
- Find, evaluate, analyze, and interpret primary and secondary sources, incorporating them into written essays using appropriate documentation format.
- Proofread and edit essays for presentation so they exhibit no disruptive errors in English grammar, usage, or punctuation.

Entry Standards

Entry Standards	Description
No value	No value

Course Limitations

Cross Listed or Equivalent Course	Description
HIST133H Honors History of Science	No Value

Specifications

Methods of Instruction

Methods of Instruction	
Methods of Instruction	Lecture
Methods of Instruction	Discussion
Methods of Instruction	Multimedia
Methods of Instruction	Collaborative Learning
Methods of Instruction	Presentations
Methods of Instruction	Field Activities (Trips)

Out of Class Assignments

- Essay (e.g., write an essay that compares the changes brought about by the Newtonian revolution to those brought about by the Einsteinian revolution)
- Research paper (e.g., a short biography of a notable 19th or 20th century scientist, followed by an evaluation of the impact of his or her work not only upon the field of science but also upon the global community)

Methods of Evaluation	Rationale
Exam/Quiz/Test	Midterm examination and final examinations
Presentation (group or individual)	Debate presentation (e.g., in-class debate about the general impact of science on the non-scientific community)
Presentation (group or individual)	Group presentation (e.g., present as a group the various influences of the theory of relativity in the 20th-century U.S.)

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
Peter Bowler and Iwan Morus	Making Modern Science: A Historical Survey, 2nd edition	University of Chicago Press	2020	9780226068619

Other Instructional Materials (i.e. OER, handouts)

No Value

Learning Outcomes

Course Objectives

Summarize various scientific philosophies and approaches.

Explain key events from the history of science.

Illustrate major shifts in the fields of math, physics, biology, and chemistry.

SLOs

Evaluate how scientific skills developed over time

Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
HIST History AA-T Degree	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience
	Learn how to discover facts, weigh interpretations, and draw conclusions in order to comprehend the present, envision alternative scenarios, and identify with generations to come
HIST History - AA-T	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience.
ILOs General Education	recall, analyze, and synthesize theories and real-world issues and topics related to social, political, and/or economic institutions

Debate controversial issues using historical texts Expected Outcome Performance: 70.0

ILOs Core ILOs	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
HIST History AA-T Degree	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience
	Learn how to discover facts, weigh interpretations, and draw conclusions in order to comprehend the present, envision alternative scenarios, and identify with generations to come
HIST History - AA-T	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience.
	Learn how to discover facts, weigh interpretations, and draw conclusions in order to comprehend the present, envision alternative scenarios, and identify with generations to come.
ILOs General Education	recall, analyze, and synthesize theories and real-world issues and topics related to social, political, and/or economic institutions

Evaluate and discuss the interaction of science and culture Expected Outcome Performance: 70.0

ANTHR Anthropology - AA-T	Analyze and describe how culture acts as our primary adaptive response
ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication.
SOC S Social Sciences	Developed a broad and critical understanding of the complex interconnections between the human and environmental forces in their world
HIST History AA-T Degree	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience
	Learn how to discover facts, weigh interpretations, and draw conclusions in order to comprehend the present, envision alternative scenarios, and identify with generations to come
HIST History - AA-T	Engage in wide reading, deep thinking, and clear communication about the vast record of human experience.
	Learn how to discover facts, weigh interpretations, and draw conclusions in order to comprehend the present, envision alternative scenarios, and identify with generations to come.
ILOs General Education	recall, analyze, and synthesize theories and real-world issues and topics related to social, political, and/or economic institutions

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Introduction/History of Science (4 hours)

- Science and pseudoscience
- Relationships between science and cultural traditions
- The world of prescience myth and science

Science in the Ancient World: Mesopotamia, Sumeria, Greece (4 hours)

- Hellenic and Hellenistic Science
- Indian science: Hindu Math
- African contributions and origins of science
- Grecian contributions and origins of science

Roman Science (1 hour)

- Science v technology development
- Engineering advancements: aqueducts and roads
- Medical practices

Islamic Science (1 hour)

- Mathematics: algebra and decimal system
- Astronomy (observatories)
- Medicine (Ibn Sina)
- Optics

Asia: China and India (2 hours)

- Major inventions
- Astronomy
- Logic and Philosophy
- Engineering

Medicine and the Body (3 hours)

- Germ theory
- Traditional Chinese medicine (TCM)
- Ayurveda

Was there a Scientific Revolution? (5 hours)

- Copernicus
- Locke
- Newton
- Galileo
- Kepler

- Bacon

Science and the Enlightenment (3 hours)
- Reason and scientific inquiry
- Development of scientific societies (e.g., Royal Society)
- Development of the idea of a scientist

Botany (4 hours)
- The periphery
- Hook's microscope
- Taxonomy
- Merian and her groundbreaking scientific illustrations
- J. Barrett
- Atkins
- Arber
- Ammal
- Mexía
- Blackwell
- Esau
- Slavery

The Darwinian Revolution and Evolution Deep Time (2 hours)
- Linneas and his political implications
- Darwin and the Victorian world
- Natural Selection and the development of the genetic world of science

Pasteur and the Medical Revolution (3 hours)
- Public health
- Eugenics as science
- Development of medical science in America

Faraday, Maxwell and the Discovery of Electromagnetism (2 hours)
- Broad shifts in nineteenth-century scientific thinking
- Faraday's contributions
- Maxwell's equations
- Historical context and impact of the discovery of electromagnetism

New Directions in Math: Cantor, Peano, Russel (2 hours)
- Cantor and set theory
- Peano and mathematical logic
- Russel and the foundations of mathematics
- Noether and abstract algebra

The Eisenstein Revolution—Relativity in the Context of Fin de Siècle Europe (5 hours)
- Scientific atmosphere at the turn of the century
- Special relativity
- General relativity
- Philosophical and cultural implications
- Mileva Einstein-*Marić*
- Olgan Ladyzhenskaya
- Sofia Kovalevskaya

Quantum Mechanics (3 hours)
- The birth of quantum theory
- Copenhagen interpretation and beyond
- Contributions of diverse women
    - Curie
    - Ball
    - Wu
    - Franklin
- Quantum mechanics and the classical world

The Big Bang and the Atom Bomb (3 hours)
- Discovery of the Big Bang Theory
- Development of nuclear physics
- The Manhattan Project
- Meitner's work on nuclear fission
- Mayer's work on the structure of the atomic nuclei

- Gender in science
- Ethical implications

Data Collection & Statistics (4 hours)

- The origins of statistics
- The rise of modern statistical methods
- Nightingale
- Mathematicians at NASA
- Impact on science and society

Total Hours 54

Additional Information

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Is it possible this course will have a material fee?

No Value

I have contacted my library liaison (https://campusguides.glendale.edu/faculty/liaisons):

No Value

What term(s) will this course be offered?

No Value

Will any additional resources be needed for this course? (Click all that apply)

No Value

If additional resources are needed, add a brief description and cost in the box provided.

No Value

Resources

Did you contact your departmental library liaison?

No

If yes, who is your departmental library liason?

No Value

Did you contact the DEIA liaison?

No

Were there any DEIA changes made to this outline?

No

If yes, in what areas were these changes made:

No Value

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value