BOWIE STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF HISTORY AND GOVERNMENT

COURSE NUMBER: Hist. 210 (3 CREDIT HOURS, ONLINE)

COURSE TITLE: History of Science and Technology

COURSE PREREQUISITE(S): English 101

INSTRUCTOR: Dr. Karen Cook Bell
OFFICE LOCATION: MLK 0216
OFFICE HOURS: TU/TH 11:00-3:00
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PHONE: (301) 860-3615

COURSE DESCRIPTION: This course is a focused survey of the intersection of technology and history and the evolutionary process that marks what we call progress. The objective is to apply historical precedent to everyday responsibilities and relationships in order to advance the goals and ideals of contemporary society; compare and contrast historical eras; and describe how events influence our sense of time, space, and technology.

REQUIRED TEXT: James E. McClellan and Harold Dorn, Science and Technology in World History, 3rd edition, (Baltimore, Johns Hopkins University Press, 2015) ISBN: 9781421417769

COURSE OBJECTIVES AND STUDENT OUTCOMES (MUST BE MEASURABLE - See Bloom's Taxonomy.):

After completing this course, you should be able to:

1. Accurately and effectively communicate ideas, information, arguments, and messages to present material in a historical context.

2. Investigate and evaluate historical information from global and social perspectives to guide decision making.

3. Apply historical precedent to contemporary roles, responsibilities, and relationships in order to advance the goals of a community or organization.

GENERAL EDUCATION COMPETENCIES THAT WILL BE MET :
Written and Oral Communications:
- Analyze and discuss critical issues and recurring themes in the discipline;
- Conduct research and evaluate information using the appropriate methods of the discipline;
Scientific and Quantitative Reasoning:

- Analyze and understand the physical and the biological world.

Critical Analysis and Reasoning:
- Apply skill in analysis, synthesis, and problem solving;
- Apply logical reasoning in the examination and resolution of tasks.

Technological Competency:
- Create a document using word processing software;
- Produce a quantitative visual representation of data using mathematical computation software;
- Construct a presentation using presentation software; or
- Manipulate data using a database management system.

Information Literacy:
- Identification of key concepts and terms that describe the information needed;
- Understanding of the ethical, legal and socioeconomic issues surrounding information and information technology.

EMERGING ISSUE: As Bowie State University strives to become a campus sensitive to the issues of preserving the environment, elements of the class will be conducted in accordance to this ideal. This course will address global warming through a reading and discussion of relevant literature. The question that will be addressed in the discussion is: **Is human activity bringing about alarming global warming scenarios and related catastrophes? Or is such thinking a myth brought about by flawed or incomplete science?** Through the study of global warming students will be able to determine their place within an ever changing diverse and global society.

Expected Student Outcomes

1.Identify and examine major ideas, approaches and texts in the field of Science and Technology Studies (STS).

Assignments: Discussions
- Discussion of conceptual and factual information from the textbook and additional materials such as handouts, articles, and audiovisual material;
  - to help students' reading and comprehension skills through synthesizing large amounts of information from required reading materials;
  - to develop historical analysis skills and relate the past to contemporary events;
  - to help students develop writing and communication skills.

2.Recognize, consider, analyze, evaluate and integrate frameworks available through historical, philosophical, sociological and STS inquiry as a basis for understanding issues arising from the dynamic, reciprocal relations among science, technology and society.

3.Convey—intelligibly, cogently and persuasively—the questions, evidence and arguments supporting our observations and judgments regarding science and technology in society.
- Research Project

- to assist students in developing a thesis emphasizing critical thought with regard to a historical problem or question;
- to assist students in the synthesis of gathered detailed or factual information in a comprehensive and structured fashion;
- to assist students in the analysis of a historical question or problem;
- to draw conclusions for the development of individual perspectives and interpretations of historical problems or questions.

TECHNOLOGY REQUIREMENTS: This course is fully online via the University's Blackboard system.

Class Guidelines:

Contacting your Professor

You may contact me via email or by phone to schedule an appointment outside of office hours. I am also available for virtual office hours on Blackboard if you are unable to schedule a visit to campus. The best way to reach me is via email at kcookbell@bowiestate.edu. I will respond to email within 24 hours.

Academic Policies and Guidelines

ACADEMIC INTEGRITY

As a member of the BSU academic community that honors integrity and respect for others you are expected to maintain a high level of personal integrity in your academic work at all times. Your work should be original and must not be reused in other courses.

CLASSROOM CIVILITY

Students are expected to work together cooperatively, and treat fellow students and faculty with respect, showing professionalism and courtesy in all interactions.

Preventing Plagiarism

Plagiarism/Academic dishonesty - **From the BSU Student Handbook**:

Academic dishonesty is defined to include any form of cheating and/or plagiarism. Cheating includes, but is not limited to, such acts as stealing or altering testing instruments; falsifying the identity of persons for any academic purpose; offering, giving or receiving unauthorized assistance on an examination, quiz or other written or oral material in a course; or falsifying information on any type of academic record. Plagiarism is the presentation of written or oral material in a manner which conceals the rue source of documentary material; or the presentation of materials which uses hypotheses, conclusions, evidence, data, or the like, in a way that the student appears to have done work which he/she did not, in fact, do. In cases involving academic dishonesty, a failing grade or a grade of zero (0) for either an assignment and/or a course may be administered. Students who are expelled or suspended for reasons of academic dishonesty are not admissible to other institutions within the University System of Maryland. See BSU Student Handbook for more detailed information. Each student is responsible for familiarizing himself/herself with these policies, and adhering to the policies.

According to the Merriam Webster Online Dictionary, plagiarism can be defined as "the act of using another person's words or ideas without giving credit to that person" (http://www.merriam-webster.com/dictionary/plagiarism). In other words, it is literally a form of theft. If your professor finds evidence that you have plagiarized, s/he must report that evidence. This can result in a zero grade for the entire assignment, not just the plagiarized sentence, text, illustration, chart, table, etc.

The consequences of committing plagiarism are extremely high for you as students and as citizens in a rapidly increasing digitized world. An accusation of this form of theft is extremely serious and has resulted in firings, resignations, and humiliation for professors, news and television reporters, and even political leaders. Therefore, I require all students to take the Academic Integrity Tutorial which you will find under Week 1 Lessons.   In addition, I strongly encourage students to read and fully understand the university's policies on academic dishonesty and plagiarism. The policy guidelines are located at https://www.bowiestate.edu/files/resources/history-and-government-student-handbook.pdf

The Department of History and Government wants to help all students achieve academic and professional success. If you have any questions about proper citation formats or doubts about when it is appropriate to document your information, your professor and the staff of the Writing Center are available to assist you.

BSU Writing Center

The Writing Center (WC) provides services and resources to help students improve their writing. You can see what the WC offers by clicking on the Resources tab located on the left menu, then clicking on the Writing Center link. The center also offers direct feedback from a trained, experienced writer called a writing advisor. You can schedule an appointment at https://bowiestate.mywconline.com. For additional information about the WC, see the Frequently Asked Questions section.

Using Library Services

Extensive Library resources, including Library research databases covering a wide variety of subject areas with tens of thousands of full text articles and other materials as well as extensive e-books collections, and services are available at www.bowiestate.edu/library. To find the library link within this course, click on the Resources tab located on the left menu, then click on the Library Services link.

The BSU Library provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats. Contact Barbara Cheadle at bcheadle@bowiestate.edu or Philip Tajeu at ptajeu@bowiestate.edu for assistance. The E-Resources area of the library's Web site at https://www.bowiestate.edu/academics-research/library/e-resources/ provides a listing of resource guides for each subject area, with each guide containing relevant research databases, Websites, books, and other resources along with technical and citation assistance. BSU's Library OneSearch allows users to simultaneously search for scholarly articles, books, and/or other research resources via a single search engine in

most of the databases to which the BSU Library subscribes, either directly or as additional resources.

Classroom Management

Discussions are the heart of this course, and I will be actively involved in the Discussions with you.

I will log in regularly to respond to e-mail, to participate in class discussions, and to grade submitted assignments. I will inform you of the planned schedule for the semester and if any changes are necessary. Instructors are not available—either face to face or online—24 hours a day, seven days a week. Please remember that I will need time to read and grade assignments before returning them to you. Please be patient, and any questions you might ask will be answered and your work graded.

Preferred Contact Method: kcookbell@bowiestate.edu

INSTRUCTIONAL MODES: Online

STUDENT REQUIREMENTS:

ATTENDANCE
Web-attendance is required to complete the course successfully. **University rules and regulations state that a student may fail a course if he/she misses a certain number of classes**. Failure to log-in weekly to complete assignments will adversely affect your grade. Students are expected to attend via the web and participate in all scheduled classes and activities. All students are expected to take examinations and turn in all assignments at the scheduled time. Students who miss assignments will not be able to perform make-up work.

Preparation:

The course information will be conveyed to students through discussions, assigned readings, and written assignments. Corresponding assignments will develop critical thinking, communication, and problem-solving skills. Discussions will assist students in the process of comprehending general concepts and relating details or facts to these through the synthesis of information. Finally, the course will provide students with a foundation for lifelong learning.

To prepare for class, students should refer to the course outline and focus on the weekly topics and assignments. Students are responsible for completing all assignments and should pay particular attention to the weekly topic of discussion and activity for focused reading and preparation.

PROJECT/ASSESSMENTS

Discussion Participation - 400points (due each module)
Every unit provides you with three components to complete for each discussion assignment. The components are, in the following order:

Your **Initial Post** response to the discussion question. These *are due on **Sunday by 11:59 pm Eastern Time***.

Your **two Peer Responses** and feedback to your classmates. These *are due on Sunday **by 11:59 pm Eastern Time***.

Please note that **BSU does not observe holidays in online courses.** Plan your schedule accordingly.

Course Goals Addressed:

*Accurately and effectively communicate ideas, information, arguments, and messages to present material in a historical context.
*Investigate and evaluate historical information from global, social and ethical perspectives to guide decision making.
In addition to these Course Goals, the Discussions will allow you to:
*Grapple with historical questions.
*Think critically.
*Argue collegially to support your views and to see arguments from the wide variety of perspectives that BSU students and faculty bring to the table.
*Discussions are the heart of this course. You have the opportunity to engage with your classmates, to challenge them, and to assert and support your own ideas in a manner consistent with what Historians themselves do when wrestling with the past.

Delivery: Post your Initial Post, Peer Responses, and Answers to those who have responded to your Initial Post under the appropriate Discussion thread. Do **not attach** your post. Post directly into the text box. I will only grade posts appearing in (and not attached to) the Discussion thread.

Instructions: Each module has a **250** word Discussion. Unless instructions for a particular discussion thread state otherwise, you are expected to contribute to each of the 4 discussions:

One **Initial Post** of at least **250** words, **citing the required readings at least 3 times.** This post will address a main topic for that unit's conference. Write in essay format, providing a clearly identifiable thesis supported by evidence **cited** from the course readings and demonstrating proper use of the English language (i.e., very minimal grammatical/spelling errors). Bulleted lists

and sentence fragments are inappropriate for conference responses. **See How to Write Historical Essays thread.**

Two Peer Responses to your classmates' Initial Posts. In these Peer Responses, comment on your peers' work; ask them questions; elaborate on their ideas; challenge or question their assertions; etc. The purpose of this part of discussion is to share your ideas; dig more deeply in your interpretations; and help each other make broader connections; etc. **Each** peer response will be **at least 50 words** and will be constructed in such a way as to **encourage and develop discussion.** Beyond the required peer responses, you are free to contribute additional comments that are as brief or as elaborate as you wish. Going beyond the minimum, while not required, is always a good idea.

All Initial Posts must thoroughly reference the assigned readings. As a guide, **cite the required readings at least 3 times in each Initial Post.** You may use simple, informal in-text parenthetical citations. Examples from the Week 1 readings would be as follows. (What is Progress?) or (Archimedes of Syracuse) You may also cite the Introductions as follows: (Cook-Bell, Week 1 Introduction). Simply place the citation at the end of the sentence that refers to the source.

Place any words that are not your own in **quotation marks** and cite the source, whether that is a classmate or a required reading or an outside source.

Deadlines: Your initial posts are due by **Sunday** for each module's end date. Your peer responses are due **Monday**.

Grading: In total, Classroom Participation is worth up to 400 points. The Discussion threads are worth up to **100 points each**. Be sure to use the Discussion Participation Rubric located in each week's discussion topic to ensure that you are working toward the score you wish to achieve.

PowerPoint: Your PowerPoint of at least ten slides will allow you to illustrate your paper, providing supporting imagery. Do not fret about the PowerPoint! Remember this is history. The people we study did not have PowerPoint.

Research Project Topics and Readings

Choose one of the following topics to present a Power Point presentation and research paper:

Black Inventors

Edison: His Life and Inventions

Tesla: Inventor of the Electrical Age

Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race

Black Wings: Courageous Stories of African Americans in Aviation and Space History

The Computer Revolution, IBM, Apple, Microsoft, and the Idea of Technological Progress

Thomas Watson, Sr.: IBM and the Computer Revolution
Carmine Gallo, *The Innovation Secrets of Steve Jobs*, (e-book).
David Bank, *Breaking Windows: How Bill Gates Fumbled the Future of Microsoft*, 2001.

GRADING FACTORS & GRADING SCALE: Must be clear

Grading Information

This course consists of the following graded items with the following weighting:

Discussions	400 points
Research Project with PowerPoint	600 points
TOTAL	**1000 points**

Grades

1000-900=A
899-800=B
799-700=C
699-600=D
Below 599=F

COURSE OUTLINE:

Module I: Readings: Historiography of Technology and Ancient Science

Leo Marx, "Does Improved Technology Mean Progress, *Technology Review*, 90 (Jan. 1987).
James E. McClellan and Harold Dorn, *Science and Technology in World History: An Introduction*, 2015. Pp. 17-113

Readings: Ancient Science and Technology in Pre-Colonial Africa

Ivan Van Sertima, *Blacks in Science: Ancient and Modern*, 1986.

Module II:

Readings: Ancient Science and Technology in Asia and Ancient America

James E. McClellan and Harold Dorn, *Science and Technology in World History: An Introduction*, 2006. (Selected Chapters). Pp. 118-194

Ivan Van Sertima, *They Came Before Columbus, The African Presence in Ancient America*, 1976. (Selected Chapter).

Module III: Week 7: Science and Technology in Medieval Europe

James E. McClellan and Harold Dorn, *Science and Technology in World History: An Introduction*, 2006. (Selected Chapters). Pp. 195-296

Module IV: Science and Industrial Civilization

James E. McClellan and Harold Dorn, *Science and Technology in World History: An Introduction*, 2006. (Selected Chapters). Pp. 298-480

 Powerpoint Presentation Due, May 16th

Module I Discussion	Due: Feb. 14
Module II Discussion	Due: March 14
Module III Discussion	Due: April 18
Module IV Discussion	Due: May 9
Research Project	Due: May 16th

AMERICAN DISABILITY ACT (ADA) Students With Disabilities

The mission of Disability Support Services (DSS) is to ensure that students with disabilities have full access to all programs and services at Bowie State University.

The office coordinates services that impact directly students who have disabilities. These services are based on the specific needs of individuals according to their disabilities. Services consist of, but are not limited to, notification to professors regarding recommended accommodations for courses, extended time on tests, note takers, scribes and readers, taped texts, alternative testing, consultation with professors, physicians, psychologists and other specialists, vocational rehabilitation referrals, and sign language interpreters.

Contact information for Disability Support Services:
Michael S. Hughes, Coordinator
Disability Support Services
Thurgood Marshall Library, lower-level, RM#078
Phone: 301-860-4067
Fax: 301-860-4086
Email: mhughes@bowiestate.edu

Disability Support Services (DSS) houses the ADA Resource Center (adaptive technology lab), located in the Thurgood Marshall Library lower level RM# 092-E. The Adaptive Technology Lab provides a supportive and accessible environment with the latest technology and software for students with disabilities to study and meet a range of different academic needs.

Support services available - Disability Support Services - https://www.bowiestate.edu/academics-research/support-services/disability-support-services/.

A variety of services are available to Bowie State University students. (https://www.bowiestate.edu/academics-research/support-services/:

a. Computer labs - Computers are available for student use in the Thurgood Marshall Library on the first floor, and in the Writing Center located in the MLK Building.

b. Counseling services https://www.bowiestate.edu/campus-life/counseling-services/

c. Disability support services - https://www.bowiestate.edu/academics-research/support-services/disability-support-services/

d. Office of Student Success - https://www.bowiestate.edu/academics-research/support-services/oss/

e. Thurgood Marshall Library - https://www.bowiestate.edu/academics-research/library/

BIBLIOGRAPHY

Agius, Dionisius A. and Richard Hitchcock. *The Arab Influence in Medieval Europe: Folia Scholastica Mediterranea,* 1997.

Ballantyne, Tony. *Science, Empire and the European Exploration of the Pacific*, 2004.

Bank, David. *Breaking Windows: How Bill Gates Fumbled the Future of Microsoft*, 2001.

Berggren, J.L. *Episodes in the Mathematics of Medieval Islam*, 2016. (Available as an e-book at www.worldcat.org)

Binford, Henry et al. *Culture and Technology: From Telling Time in the Ancient Roman World to the Cultural Significance of Ice Cream in Modern America*, National Humanities Center, 1992. Available as an audio recording at www.world.cat.org

Brain, Marshall. *The Engineering Book: From the Catapult to the Curiosity Rover: 250 Milestones in the History of Engineering*, 2015.

Chirikure, Shadreck. *Metals in Past Societies: A Global Perspective on Indigenous African Metallurgy*, 2015.

DeGrasse Tyson, Neil. *Astrophysics for People in a Hurry*, 2017.

N.A. *The Encyclopedia Britannica Guide to the 100 Most Influential Scientists : The Most Important Scientists from Ancient Greece to the Present Day*, 2008. Available as an e-book at www.worldcat.org.

Hamblin, Jacob Darwin. *Science in the Early Twentieth Century*, 2005.

Hardesty, Von. *Black Wings: Courageous Stories of African Americans in Aviation and Space History*, 2008.

Ho, Chuimei. *Ancient Ceramic Kiln Technology in Asia*, 1990.

Holmes, Keith C. *Black Inventors: Crafting Over 200 Years of Success*, 2008

Howe, Christopher. *The Origins of Japanese Trade Supremacy: Development and Technology in Asia from 1540 to the Pacific War*, 1999.

Hoyrup, Jens*. In Measure, Number, and Weight: Studies In Mathematics and Culture***, 1989**.

Irby-Massie, Georgia. *A Companion to Science, Technology, and Medicine in Ancient Greece and Rome*, Vols. 1-3, 2016.

J.B. Kennedy, *Space, Time, and Einstein: An Introduction*, 2014.

Mahan, Alfred T. *The Influence of Sea Power Upon History 1660-1783*, 2017.

MacLachlan, James H. *Children of Prometheus : A History of Science and Technology***, 1989**.

Oreskes, Naomi and John Krige, *Science and Technology in the Global Cold War*, 2014.

Pampalona, Alberto Hernandez. *A Visual History of Science and Technology*, 2016.

Phelps, Alfred J. *They Had a Dream: The Story of African-American Astronauts*, 1994.

Schmidt, Peter R. *The Culture and Technology of African Iron Production*, 1996.

Selin, Helaine. *Encyclopedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, 2016. E-book available at www.worldcat.org

Sobel, Robert. *Thomas Watson, Sr.: IBM and the Computer Revolution*, 2000.

Van Sertima, Ivan. *Early America Revisited*, 1998. (Available as an e-book at www.worldcat.org)

Weisser, Terry Drayman. *Gilded Metals: History, Technology, and Conservation*, 2000.

White, Lynn. *Medieval Technology and Social Change*. 1962.

Whitney, Elspeth. *Medieval Science and Technology*, 2004.

Wilson, Norman J. *The European Renaissance and Reformation, 1350-1600*, 2001.

Winfield, Ann Gibson. *Eugenics and Education in America: Institutionalized Racism and the Implications of History, Ideology, and Memory*, 2007.

Yang, Daquing. *Technology of Empire: Telecommunications and Japanese Expansion in Asia, 1883-1945*, 2010.

Discussion Rubric Used in HIST Online,

Responses to Instructor's Questions (5 points)

5 points	At least three main topic questions posed by instructor were responded to with thorough, thoughtful postings based on the readings.
4 points	At least three main topic questions posed by instructor were responded to, but were based on opinion and/or were not back up with facts from the readings.
3 points	Two main topic questions posed by the instructor were responded to with thorough, thoughtful postings based on the readings.
2 points	Two main topic questions posed by the instructor were responded to, but were based on opinion and/or were not backed up with facts from the readings.

1 point	One main topic question posed by the instructor was responded to with thorough, thoughtful posting based on the readings.
0 points	No responses to instructor's main topic questions, or inadequate postings.

Responses to Classmates' Postings and Discussions (2 points):

2 points	At least two responses posted to classmates which help to further the discussion.
1 point	One response to a classmate's posting which helps to further the discussion.
0 points	No responses or simple "I agree" responses which do not further the discussion.

Level of Engagement Throughout the Week (3 points):

3 points	Majority of responses to instructor's questions and to classmates are spread throughout the week (3 or more days); Student responds to comments/questions directed at his/her postings.
2 points	Majority of postings are done on less than 3 days of the week; student responds to comments/questions directed at his/her postings.
1 point	Postings are done on less than 3 days of the week; student does not respond to comments/questions directed at his/her postings.
0 points	Postings are all done on the same day of the week; student does not respond to comments/questions directed at his/her postings.

Research Project Rubric

	50	60	70	80	100
Substance/Content	Essay has major gaps in its analysis of the content. It does not demonstrate an understanding of the topic, and it does not demonstrate appropriate levels of critical thinking about the topic.	Essay has significant gaps in its analysis of the content in both critical thinking skills and in demonstration of knowledge of the topic.	Essay has some gaps in its analysis of the content. Either deeper levels of critical thinking or a more thorough analysis of the topic would have made the essay more effective.	Essay is appropriate in its handling of the content. However, more analysis, more examples, or a deeper level of critical thinking would have made the essay more effective.	Essay shows excellent analysis and thorough coverage of the content. It also demonstrates effective critical thinking skills in its analysis of the topic.
Organization	Organization and logical flow of thought are not clear throughout the essay.	Organization and logical flow of thought are not clear in many areas.	Organization and logical flow of thought are not clear in some areas.	Organization follows a clear, logical sequence. However, information is occasionally difficult to follow because of a lack of transition expressions or a lack of logical flow.	Organization follows a clear, logical sequence that makes the information easily accessible to the reader. Sentences feature excellent coherence.
Statement of Purpose and Supporting Details	The argument cannot be found. In addition, no support is given to any possible argument in the essay.	The argument cannot be found at the beginning of the essay. It is difficult for the reader to determine what the writer's persuasive argument is. Less than two primary and secondary sources are used in the paper	The argument cannot be found at the beginning of the essay but can be discerned after reading the paper. However, the argument is not well defended throughout the essay. Five primary and secondary sources are used in the paper.	The argument is not clearly expressed in the beginning of the essay or the argument is not well defended throughout the essay. Five primary sources and secondary are used in the paper.	The argument is clearly expressed in the beginning of the essay. The argument is well defended throughout the paper. Five primary sources and secondary are used in the paper.

Word Choice	The length of the essay is shorter than the requirement indicates. The paper is too short to evaluate its level of vocabulary.	Appropriate academic vocabulary is lacking. This compromises the persuasion of the writer.	Appropriate academic vocabulary is generally not used throughout the essay.	Appropriate academic vocabulary is usually used throughout the essay. However, better vocabulary could make the essay more persuasive.	Appropriate academic vocabulary is used throughout the essay.