American Public University System
American Military University | American Public University

STEM380

Course Summary

Course : STEM380 **Title :** Coevolution of Society, Culture, and Technology **Length of Course :** 8 **Faculty :**
Prerequisites : N/A **Credit Hours :** 3

Description

Course Description:

This course will expose students to how since the earliest days of mankind, technology and technological advances have helped to mold our society and guide our prosperity, but also to the goals of the society in driving the development and progression of technology as well. This course will review the various periods of time, where the world leaped forward in their understanding of the world around them and how they could harvest the world around them to advance their own world. This course will also reveal the potential conflicts of complex relationships between technology and society, looking at such topics as global warming, artificial intelligence, nuclear weapons, and many other potentially dangerous technological advances.

Course Scope:

This course extends the science-fictional and philosophical concepts discussed in STEM280: “Exploring
Societies and Cultures via Science Fiction” to explore the co-evolution of societies and Science,
Technology, Engineering, and Math (STEM). This course will critically examine the impact of technologies, economics, political systems, and other disciplines in shaping the development of societies and cultures. Do different technologies and economic systems lead to the development of diverse societies and cultures? Are there barriers or support to certain types of political systems? Do political systems affect which technologies and economic systems are developed? What potential conflicts are there in the complex relationships between technology and society as we examine topics such as global climate change, artificial intelligence, weapons technologies, and other advances? During this course we will attempt to address the fundamental question of which “comes first” … does STEM shape societal change or does societal change shape STEM advances?

Objectives

- **CO1:** Identify complex relationships between technology and society
- **CO2:** Recognize positive and negative impacts from advances in technology and other STEM fields on the development of economies, policies, and other aspects of societies and cultures.
- **CO3:** Analyze a recent key technology, its role in the development of society, and its overall impacts on society, both positive and negative.

CO4: Compare two different societal responses to recent technological advances.

Outline

Week 1: Western vs. Non-Western Society and STEM

Learning Outcomes

LO1: Summarize a larger societal response to "STEM"

LO2: Identify the dominate perception of STEM within a society

LO3: Relate societal perception of STEM with how STEM disciplines are practiced

LO4: Explain the key differences in how different groups treat STEM and technology

Required Readings

Liverpool, L. (2021). Researchers from global south under-represented in development research.
Nature.com

Mavhunga, C. (2017). What Do Science, Technology, and Innovation Mean from Africa? The MIT Press.
https://library.oapen.org/bitstream/handle/20.500.12657/31335/631166.pdf;jsessionid=BBF6B3AC8132D3B sequence=1: Introduction and Chapter 3

Assignments

Welcome Discussion

Week 1 & 2 Discussion: Societal Differences in STEM approaches (initial post due Sunday Week 1)

Recommended Optional Reading
Recommended Media

Week 2: Western vs. Non-Western Society and STEM

Learning Outcomes

LO1: Summarize a larger societal response to "STEM"

LO2: Identify the dominate perception of STEM within a society

LO3: Relate societal perception of STEM with how STEM disciplines are practiced

LO4: Explain the key differences in how different groups treat STEM and technology

Required Readings

Pew Research Center (2015). Public and Scientists' Views on Science and Society https://www.pewresearch.org/science/2015/01/29/public-and-scientists-views-on-science-and-society/

Shearer, A., Paredes, I.J., Ahmad, T., Jackson, C. (2020). Yes, Science is Political. Scientific American. https://www.scientificamerican.com/article/yes-science-is-political/

Pew Research Center (n.d.). Research Topics https://www.pewresearch.org/topics-condensed/?menuItem=science

Stick to the Science (Podcast; 3 episodes):

https://youtu.be/v-NhTcTUD-U

https://youtu.be/tMNdjYn2_PA

https://youtu.be/pnryb_syoeg

Bhaduri, S. (2003). Science, Society, and Technology: Three Cultures and Multiple Visions. Journal of Science Education and Technology, 12(3), 303–308. http://ezproxy.apus.edu/login? url=https://www.proquest.com/scholarly-journals/science-society-technology-threecultures/docview/2259582238/se-2?accountid=8289

Zavrel, E. A. (2011). How the Discovery Channel Television Show "Mythbusters" Accurately Depicts Science and Engineering Culture. Journal of Science Education and Technology, 20(2), 201–207. http://ezproxy.apus.edu/login?url=https://www.proquest.com/scholarly-journals/how-discovery-channeltelevision-show-i/docview/2259585954/se-2?accountid=8289

Assignments

Week 1 & 2 Discussion: Societal Differences in STEM approaches (peer responses due Sunday Week 2)

Final Paper Topic Selection: due Sunday

Recommended Optional Reading
Recommended Media

Week 3: STEM and Leisure

Learning Outcomes

LO1: Examine the role of STEM on concepts of 'reciprocity' and connectivity.

LO2: Explain the connection between STEM advances and leisure.

LO3: Relate changes in technology availability to changes in personal lives.

LO4: Link STEM with shifts in economic status and occupations.

Required Readings

Ling, Richard. Taken for Grantedness : The Embedding of Mobile Communication into Society, MIT Press, 2012. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/apus/detail.action?docID=3339536:
Chapters 6 and 8

Snigdha Singh, & Pallavi Srivastava. (2019). Social media for outbound leisure travel: a framework based on technology acceptance model (TAM). Journal of Tourism Futures, 5(1), 43–61. https://doi.org/10.1108/JTF-10-2018-0058Vidal, B. (2019). The New Technology and Travel Revolution. WAM Global Growth Agents.https://www.wearemarketing.com/blog/tourism-and-technology-how-tech-is-revolutionizing-travel.html

Loria, K. (2015). Science is creating super-athletes—and making sports unrecognizable to previous generations. Business Insider.https://www.businessinsider.com/how-science-and-technology-are-changingsports-2015-8

Assignments

Week 3 & 4: Discussion: Social Reciprocity and STEM (initial post due Sunday Week 3)

Paper 1: Integration of STEM and Leisure Technologies (Due Sunday Week 3)

Recommended Optional Reading
Recommended Media

Week 4: STEM and Leisure

Learning Outcomes

LO1: Examine the role of STEM on concepts of 'reciprocity' and connectivity.

LO2: Explain the connection between STEM advances and leisure.

LO3: Relate changes in technology availability to changes in personal lives.

LO4: Link STEM with shifts in economic status and occupations.

Required Readings

Vidal, B. (2019). The New Technology and Travel Revolution. WAM Global Growth Agents.https://www.wearemarketing.com/blog/tourism-and-technology-how-tech-is-revolutionizing-travel.html

Loria, K. (2015). Science is creating super-athletes—and making sports unrecognizable to previous generations. Business Insider.https://www.businessinsider.com/how-science-and-technology-are-changingsports-2015-8

UNESCO Institute for Statistics: Research and development expenditure https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS

OECD Data: Gross domestic spending on R&D https://data.oecd.org/rd/gross-domestic-spending-on-rd.htm

UNESCO Institute for Statistics: How Much Does Your Country Invest in R&D? http://uis.unesco.org/apps/visualisations/research-and-development-spending/

Assignments

Week 3 & 4 Discussion: Social Reciprocity and STEM (peer responses due Sunday

Week 4) Paper Outline: due Sunday

Recommended Optional Reading
Recommended Media

Week 5: Which Comes First, Politics or STEM?

Learning Outcomes

LO1: Link economic systems with political support of STEM

LO2: Relate changes in market dynamics to shift in STEM support

LO3: Compare government and private support of STEM under different social systems

LO4: Relate societal acceptance of STEM to societal expectations of STEM

Required Readings

Kraemer, Sylvia K., and Sylvia Kraemer. Science and Technology Policy in the United States : Open Systems in Action, Rutgers University Press, 2006. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/apus/detail.action?docID=340816: Chapter 1 and 2

Chinese Intellectuals Between State and Market, edited by Merle Goldman, and Edward Gu, Taylor & Francis Group, 2004. ProQuest Ebook Central, https://ebookcentral.proquest.com/lib/apus/detail.action?docID=180959: Chapter 4 and 5

Assignments

Paper 2: Government vs. Private Support of STEM R&D (Due Sunday Week 5)

Recommended Optional Reading
Recommended Media

Week 6: Societies' Utilization of STEM

Learning Outcomes

LO1: Compare utilization of STEM advances in support of political activities

LO2: Relate STEM acceptance to prevalence of technology in daily and political life

LO3: Identify ways that STEM technologies can be utilized in political activities

LO4: Relate political ideologies to government responses to STEM

advances Required Readings

Jost, J. T., Barberá, P., Bonneau, R., Langer, M., Metzger, M., Nagler, J., Sterling, J., & Tucker, J. A. (2018). How Social Media Facilitates Political Protest: Information, Motivation, and Social Networks. Political Psychology, 39(S1), 85–118. http://ezproxy.apus.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip&db=tsh&AN=128070832&site=ehost-live&scope=site

Piechota, G. (2021). The transnational discourse of political protests: setting the agenda through social media. Kome (Budapest), 9(1), 19–40. http://komejournal.com/files/KOME_PiechotaG.pdf

Ayaz, A. A. (2014). RELIGION, TECHNOLOGY AND SOCIAL CHANGE: REPRESENTATIONS OF MUSLIM WORLD IN ACADEMIC ANALYSES OF THE ROLE OF SOCIAL MEDIA IN THE ARAB SPRING. Tarbiya : Journal of Education in Muslim Society, 1(2), 131–148. http://journal.uinjkt.ac.id/index.php/tarbiya/article/view/1264

Valenzuela S. Unpacking the Use of Social Media for Protest Behavior: The Roles of Information, Opinion Expression, and Activism. American Behavioral Scientist. 2013;57(7):920-942. https://journals-sagepubcom.ezproxy2.apus.edu/doi/full/10.1177/0002764213479375

Assignments

Week 6 & 7 Discussion: Activism and STEM (initial post due Sunday Week 6)

Recommended Optional Reading
Recommended Media

Week 7: Societies' Utilization of STEM

Learning Outcomes

LO1: Compare utilization of STEM advances in support of political activities

LO2: Relate STEM acceptance to prevalence of technology in daily and political life

LO3: Identify ways that STEM technologies can be utilized in political activities

LO4: Relate political ideologies to government responses to STEM

advances Required Readings

Jost, J. T., Barberá, P., Bonneau, R., Langer, M., Metzger, M., Nagler, J., Sterling, J., & Tucker, J. A. (2018). How Social Media Facilitates Political Protest: Information, Motivation, and Social Networks. Political Psychology, 39(S1), 85–118. http://ezproxy.apus.edu/login?url=https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip&db=tsh&AN=128070832&site=ehost-live&scope=site

Piechota, G. (2021). The transnational discourse of political protests: setting the agenda through social media. Kome (Budapest), 9(1), 19–40. http://komejournal.com/files/KOME_PiechotaG.pdf

Ayaz, A. A. (2014). RELIGION, TECHNOLOGY AND SOCIAL CHANGE: REPRESENTATIONS OF MUSLIM WORLD IN ACADEMIC ANALYSES OF THE ROLE OF SOCIAL MEDIA IN THE ARAB SPRING. Tarbiya : Journal of Education in Muslim Society, 1(2), 131–148. http://journal.uinjkt.ac.id/index.php/tarbiya/article/view/1264

Valenzuela S. Unpacking the Use of Social Media for Protest Behavior: The Roles of Information, Opinion Expression, and Activism. American Behavioral Scientist. 2013;57(7):920-942. https://journals-sagepubcom.ezproxy2.apus.edu/doi/full/10.1177/0002764213479375

Assignments

Week 6 & 7 Discussion: Activism and STEM (peer responses due Sunday Week 7)

Final Paper: due Sunday

Recommended Optional Reading
Recommended Media

Week 8: Societal Differences in STEM

Learning Outcomes

LO1: Summarize a larger societal response to "STEM"

LO2: Relate STEM acceptance to prevalence of technology in daily and political life

LO3: Relate changes in technology availability to changes in personal lives.

LO4: Relate societal acceptance of STEM to societal expectations of STEM

Required Readings

No assigned readings

Assignments

Week 8 Summary Discussion (due Sunday Week 8; no peer responses required)

Recommended Optional Reading
Recommended Media

Evaluation

Grading:

Name	Grade %
Discussions	40.00 %

Welcome Discussion	8.00 %
Week 1 & 2 Discussion	8.00 %
Week 3 & 4 Discussion	8.00 %
Week 6 & 7 Discussion	8.00 %
Week 8 Discussion	8.00 %

Essays	20.00 %
Paper 1: Intergration of STEM and Leisure Technologies	10.00 %
Paper 2: Government vs. Private Support of STEM R&D	10.00 %

Final Paper	40.00 %
Final Paper	24.00 %
Final Paper Topic Selection	8.00 %
Final Paper Outline	8.00 %

Materials

Book Title: Various resources from Trefry Library and/or the Open Web are used. Links provided inside the classroom.

Author:

Publication Info:

ISBN: D2L Note

Course Guidelines

Late Work

The University encourages all work to be completed according to the course schedule. The University Late Work Policy can be found in the Student Handbook here.

This course will utilize APA style for citations and paper formatting. The University offers many resources to help you with this, including the list below:

https://www.apus.edu/apus-library/resources-services/Writing/writing-center.html

https://www.apus.edu/apus-library/resources-services/Writing/writing-center/apa-style-guide-info.html

Three of the five discussions in this course will span 2 weeks rather than the typical 1-week length: your initial posts will be due in the first week and peer responses in the second. Based

on this longer time frame, it is expected that your discussion posts are well researched and detail rich. You will likely need to spend more time developing your main post in the first week. In the second week, there is an expectation that engagement in the discussion is regular and frequent. Waiting to make your peer responses on a single day, or failing to re-engage on your own main thread, will negatively impact your score on these discussions.

University Policies

Student Handbook

- Drop/Withdrawal policy
- Extension Requests
- Academic Probation
- Appeals
- Disability Accommodations

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.