Information and Technology Studies

Undergraduate College

ITS 102.1: Serious Games
Meeting Pattern: F 9:50 AM-10:45 AM
Location: CS 2205

Today's games are not just child's play. With their immersive environments, engaging activities, and social networks, games have the potential to influence large audiences in the 21st century the way that motion pictures did in the 20th century. Serious games are designed to inform, educate, persuade, train, test hypotheses, and build communities. This seminar will explore emerging technologies and trends in serious games, and give students the opportunity to design their own serious games.

Instructor:
Lori Scarlatos, *Technology & Society*

Lori Scarlatos is an Associate Professor in the Department of Technology and Society, and affiliated with the Department of Computer Science. She has a BFA in Fine Art, and an MS and Ph.D. in Computer Science. With the MS, she worked in industry for 10 years on applications for cartographic and image analysis (as a senior programmer at Grumman) and animated PC games (as programmer, then vice president). After earning her Ph.D. from Stony Brook University, she taught at Hampshire College and Brooklyn College before returning to Stony Brook as a faculty member. She has done research in computer graphics and computer-human interaction that has been supported by several grants and contracts. She is also committed to broadening participation in computing, and has led outreach programs and summer camps for under-represented students in middle school, high school, and undergraduate college.

ITS 102.2: Current Issues in Science and Engineering
Meeting Pattern: TU 11:20 AM-12:15 PM
Location: Library 3090

This seminar will examine many current issues in science and technology with an emphasis on their societal impact. Class discussions on these topics will be a major component of the seminar. Topics include nuclear power and other energy sources, health, medicine, the environment, technology with a big impact and engineering disasters.

Instructor:
Thomas Robertazzi, *Electrical & Computer Engineering*

Thomas Robertazzi is a professor and IEEE Fellow. He has been at Stony Brook since 1983 and does scheduling and networking research. He has written four books. For about 12 years he was faculty director of the science and engineering Living Learning Center in Mendelsohn quad. He also has four cats at home.

ITS 102.3: Energy and Technology
Meeting Pattern: F 9:35 AM-10:30 AM
Location: Engineering 112 (CADlab)

In this ITS102 course, students will have an opportunity to conduct research and perform analysis on various topics of energy and technology. This will be a guided study in which you will interact with the professor directly to choose the topic, conduct study and literature survey, and put together a professional presentation on the topic of your choice. Issues and case studies include topics in "Energy and Technology" pertaining to: environment, daily life, transportation, power plant, energy production, energy consumption, reserve on earth, carbon sequestration, drinking water, biosystem, biodiversity, … etc. Students are expected to produce a video podcast presentation, as the term project, to document and present their research finding on a chosen topic.

Instructor:
Imin Kao, *Department of Mechanical Engineering*

Dr. Imin Kao is a Professor of the Department of Mechanical Engineering, and the Associate Dean of the College of Engineering and Applied Sciences.

ITS 102.4: Artificial Life: Fact and Fiction

Meeting Pattern: TU 9:50 AM-10:45 AM
Location: Center for Information and Technology Studies A04 (Gray College)

Emerging technologies in genetics, robotics, artificial intelligence and nanotechnology (the GRAIN technologies), as well as bioengineering and bioinspired engineering, are often looked to as a pathway to the development of "artificial life". Whether this is a realistic outlook or pure imagination (or somewhere in between), science fiction writers have been at the forefront of speculation on both the promises and risks of such a technology. From "Frankenstein" to modern tales of cloning and autonomous robots, we will look at how popular media has considered both the beenfits and potential hazards of artificial life,and discuss how this compares to current technology and what this can teach us about ethics in science and engineering.

Instructor:
Gary Halada, *Materials Science and Engineering*

Gary Halada is an associate professor in the Department of Materials Science and Engineering. He is the Undergraduate program Director for the Engineering Science (ESG) degree program, as well as coordinator of the Minors in Nanotechnology Studies (NTS) and Environmental Engineering (ENE). A graduate of Stony Brook University, Dr. Halada is a past faculty director for the Undergraduate College of Information and Technology Studies (ITS). His research focuses on designing bioinspired materials for environmental remediation and nanoscale engineering.

ITS 102.5: Nanotechnology: Fact and Fiction

Meeting Pattern: TU 11:20 AM-12:15 PM
Location: Center for Information and Technology Studies A04 (Gray College)

Nanotechnology is the research, design and manufacture of functional materials or devices which rely on the unique properties materials have at a size scale of a few billionths to a few tenths of a millionth of a meter. Nanotechnology has not only begun to open a meter. Nanotechnology has not only begun to open a major plot device for science fiction over the last thirty or so years. We will examine nanotechnology from the point of view of science fiction, and contrast that with the science, technology, risks and promise of nanotech research today.

Instructor:
Gary Halada,

ITS 102.6: Embedded Systems: Security, Privacy, and Ethical Issues

Meeting Pattern: W 10:40 AM-11:35 AM
Location: Computer Science Room: 1306

In modern life, computers and sensors are in almost every device surrounding us. These embedded systems have changed the concept of computing and expanded the way we share, store, and use information. With this expansion comes increased concerns of personal security, privacy, and ethical boundaries. This seminar we will discuss our modern world of embedded systems, hardware and software security and privacy mechanisms, and the ethical quandaries which arise in this modern computing world.

Instructor:
Jennifer Wong-Ma, *Computer Science*

Jennifer Wong-Ma is an Assistant Professor in the Department of Computer Science and affiliated with the Center for Excellence in Wireless and Information Technologies (CEWIT). She received her B.S., M.S. and Ph.D in Computer Science from the University of California, Los Angeles. Her current research interests are in statistical optimization of Wireless Distributed Embedded Systems, Hardware Security, and Mobile Systems.

ITS 102.7: Computers playing Jeopardy!

Meeting Pattern: TU 12:50 PM-2:50 AM
Location: Computer Science 2114
This class meets for 2 hours a week for the first 7 weeks of the semester.

The Computers playing Jeopardy! seminar is about the IBM Watson project. IBM Watson is a computer system capable of answering rich natural language questions and estimating its confidence in those answers at a level of the best humans at the task. On Feb 14-16, in an televised event, Watson triumphed over the best human players of all time on the American quiz show, Jeopardy!. In this seminar we will discuss the main principles of natural language processing, computer representation of knowledge and discuss how Watson solved some of its answers (right and wrong).

Instructor:
Paul Fodor, *Computer Science Department*

Paul Fodor, Computer Science Department, Stony Brook University, Stony Brook, New York 11794 (pfodor@cs.stonybrook.edu). Dr. Fodor is a Research Assistant Professor in the Computer Science Department at Stony Brook University (SUNY of New York). He received a B.S. degree in computer science from the Technical University of Cluj-Napoca in 2002, M.S. and Ph.D. degrees in computer Science from the Stony Brook University in 2006 and 2011, respectively. His work on declarative rule languages and logic used as a specification language and implementation framework for knowledge bases was applied in areas ranging from natural language processing to complex event processing and semantic Web. Through his research, Dr. Fodor has contributed to several large software projects: IBM Watson, OpenRuleBench suite of benchmarks for analyzing the performance and scalability of rule systems for the semantic Web, ETALIS declarative complex event processing, and SILK Semantic Inferenc!

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ITS 102.8: Current Science
Meeting Pattern: M 2:20 PM-3:15 PM
Location: Center for Information and Technology Studies A04 (Gray College)

This course will be an exploration into current findings in science and the impact of these findings on society. Class discussions will focus on the relevance and impact of recent advances in science in addition to identifying areas of future research.

Instructor:
Josh Carlson, *Biomedical Engineering*

Research Assistant Professor in Biomedical Engineering. Much of his research is aimed at understanding the neural mechanisms underlying salience detection within subliminal or near subliminal processing conditions. Furthermore, this research examines how differences in brain activity relate to differences personality.

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ITS 102.10: Games in Total
Meeting Pattern: M 6:50 PM-7:45 PM
Location: Compsi 2116

A look at the process of game development from start to finish, including the steps and tools involved, and the skills needed to complete them. This will include hands on demonstrations of using software tools. In addition, an examination of games research and the potential of using games as learning tools.

Instructor:
Richard McKenna, *Computer Science*

Richard McKenna is the creator and coordinator for the Computer Science department's Game Programming Specialization. Richard teaches CSE 380, Computer Game Programming, and CSE 381, Advanced Game Programming, and advises student research projects in game development.

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ITS 102.11: The Studio in your Pocket
Meeting Pattern: M 11:45 AM-12:40 PM
Location: Center for Information and Technology Studies A04 (Gray College)

This seminar will explore how the technology people carry everyday, aka cell phones and smart phones, can be used creatively in daily life. Using a variety of functions on their own cell phones and smart phones students will work individually and in groups to create digital sketch books, daily diaries and short video projects. The seminar will also explore how ubiquitous cameras and being uber-connected via social media affect the way we navigate our surroundings.

Instructor:
Stephanie Dinkins,

Stephanie Dinkins is an associate professor in the Department of Art.   She is Director of the

MFA and Digital Art Minor Programs in the Department of Art and in Department.   She holds an MFA from the Maryland Institute College of Art and a Bachelor of Science in Marketing and Advertising from Syracuse University. .   Her art practice is center on the production of video based installations and public art projects. She teaches a variety of digital media courses on campus including, Introduction to Digital Art, Video and Advanced Electronic Media.

ITS 102.12: Did You Hear That? – Sonic Art Using Computers
Meeting Pattern: W 2:20 PM-3:15 PM
Location: Staller Center 4255

Did You Hear That? – Sonic Art Using Computers Computer music, electronic music, sound design. By any name, recent years have seen an explosion of creative activities in computer-aided sonic art. Be a part of it! Learn about acoustics, hard-disk recording, mixing and editing, sound manipulation, digital sound effects, and composition with sound. Listen to and discuss the best pieces from this growing area of music. Explore the microscopic inside of a sound. Under the friendly guidance of internationally known composer Dr. Daniel Weymouth, you will discover a new way of hearing, and of approaching sound. And, you will create! This is a project-based course: the end of the course will be a concert featuring pieces you all have created, using widely available freeware. No prior musical experience is required, just an interest in sound! Basic computer literacy (nothing fancy) is assumed. Students will need to have access to a computer on which they can install freeware. Computer music, electronic music, sound design. By any name, recent years have seen an explosion of creative activities in computer-aided sonic art. Be a part of it! Learn about acoustics, hard-disk recording, mixing and editing, sound manipulation, digital sound effects, and composition with sound. Listen to and discuss the best pieces from this growing area of music. Explore the microscopic inside of a sound. Under the friendly guidance of internationally known composer Dr. Daniel Weymouth, you will discover a new way of hearing, and of approaching sound. And, you will create! This is a project-based course: the end of the course will be a concert featuring pieces you all have created, using widely available freeware. No prior musical experience is required, just an

interest in sound! Basic computer literacy (nothing fancy) is assumed. Students will need to have access to a computer on which they can install freeware.

Instructor:
Daniel Weymouth, *Music*

Daniel A. Weymouth composes electroacoustic music, as well as non-electronic music that tends to sound electronic. He is interested in highly kinetic works, perhaps because of a decade spent as an itinerant musician, playing jazz, C&W, rock, disco (!), R&B and funk. Commissions have come from international ensembles, as well as a wide range of wonderful musicians; recordings are on SEAMUS, Bridge, and New World Records. He co-hosted the 2010 International Computer Music Conference at Stony Brook University, where he is Interim Director of the Consortium for Digital Arts, Culture and Technology, and a member of the Composition faculty.

ITS 102.13: Mimicking biology
Meeting Pattern: TH 5:20 PM-6:15 PM
Location: Need Location

Modern computers perform computation using high precision, high speed digital processors. On the other hand, brain uses imprecise components operating on time scales on the order of milliseconds. We will discuss the concepts of neuromorphic engineering that explores these differences. We will present examples of artificial neural systems, such as vision systems, auditory processors, and autonomous robots, whose physical architecture and design principles are based on those of biological nervous systems.

Instructor:
Milutin Stanacevic, *Electrical and Computer Eng*

Milutin Stanacevic received the B.S. degree in Electrical Engineering from the University of Belgrade, Serbia in 1999, and the Ph.D. degree in Electrical and Computer Engineering from Johns Hopkins University, Baltimore, MD, in 2005. He is an Associate Professor of Electrical and Computer Engineering at Stony Brook University, NY. His research interests include mixed-signal VLSI circuits, systems, and algorithms for parallel multi-channel sensory information processing with emphasis on real-

time acoustic source localization and separation, and micropower implantable biomedical instrumentation and telemetry.

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ITS 102.14: Garbage in your world
Meeting Pattern: M 12:50 PM-1:45 PM
Location: Library 3090

We will look at the kind of garbage we make, in particular here on campus. Many people draw conclusions about the very nature of our society from our garbage, and we will look at some of those points of view. The class will explore some ways we currently manage our wastes, and examine some alternatives that may lead to entirely different approaches to materials use. The potential for such changes to lead to a more "sustainable" way of life will be discussed.

Instructor:
David Tonjes, *Tech & Soc*

Dr. Tonjes conducts research on environmental management. His primary areas of research are solid waste processes and management, and estuarine and coastal management. Solid waste research topics have included waste generation and management methodologies, including assessments of local programs and helping local governments plan and implement effective strategies. Landfill impacts on the environment are another topic of interest, including assessments of leachate quality and treatment methodologies, and tracing impacts to groundwater and surface water systems following releases of
leachate to the environment, including creating and maintaining groundwater models of the affected systems.

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ITS 102.15: Society on the Web
Meeting Pattern: M 12:50 PM-1:45 PM
Location: CS Building Room 2114

The Internet has become the fastest-growing technology in world history. The Web is a major part of our lives. We use it for communication, school, work, entertainment, shopping, and a lot more. In this course, many aspects of our new life on the web will be explored. Also, students will have the opportunity to share their knowledge and online experiences about topics such as E-Learning, social relationships, E-commerce, culture on-line, government and political life.

Instructor:
Ahmad Esmaili,

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ITS 102.16: Societal Impact of Nanotechnology
Meeting Pattern: TU 9:50AM-10:45AM
Location: Emailed Regarding room change

This course will focus on the applications and societal implications of nanotechnology. After a brief introduction to research in nanotechnology (applied science and technology at the molecular level), attention will turn to the myriad of potential applications of nanotechnology. Special consideration will be given to scientific, social, political, economic, behavioral, legal and ethical aspects of the development and applications of nanotechnology.

Instructor:
David Ferguson, *Technology and Society*

David Ferguson is a Distinguished Service Professor of Technology and Society and Applied Mathematics and Statistics at Stony Brook Univeristy. Currently, he is chair of the Department of Technology and Society. His research and teaching are intertwined and focus on issues of quantitative reasoning; problem solving; use and assessment of educational technologies; technology in mathematics, science and engineering education; and decision making.

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ITS 102.17: Having Fun with Polymers
Meeting Pattern: TU 5:20PM-6:15PM
Location: Engineering Building 236A

Learning what polymers can do, using hands on demonstrations. You will make goo, nylon, foam sculptures, quicksand,ice cream, etc, to understand how very large molecules have a science of their own.

Instructor:
Miriam Rafailovich, *Materials Science and Engineering*

Miriam Rafailovich is the co-director of the program in chemical and molecular engineering and directs a research program for polymers nanocomposites with applications in tissue engineering, energy, and flame retardant materials.