REVOLUTIONARY RESEARCH AND ACADEMIC INNOVATION

Since its founding as a colonial charter college in 1766, Rutgers University has linked academic innovation with revolutionary research in producing generations of scholars and leaders. With alumni such as Nobel Laureates Milton Friedman, Heinrich Rohrer, and Selman Waksman, and Pulitzer-Prize winner Junot Diaz, Rutgers has a proven legacy of guiding its students to achieve their utmost. Designed to introduce first-year students to faculty research and to welcome those students to the life of the mind at Rutgers, the Byrne Seminars honors the University’s 250th anniversary by taking up Revolutionary Research and Academic Innovation as its theme for 2015-2016. Building on Rutgers’ long history, we celebrate the cutting-edge research that is produced on the New Brunswick campus. Our renowned faculty from across the disciplines, including 37 members of the National Academy of Science, the National Academy of Engineering, and the Institute of Medicine, are engaging with questions that will shape the twenty-first century in an array of fields. Through our nationally ranked programs in the humanities and liberal arts, our faculty address the imaginative, historical, and cultural dimensions of what it means to be human. From projects as diverse as spinal cord injury research, underwater robotic gliders, genetic engineering of plants, and restoration of one of the first films to feature an all-Native American cast, Rutgers professors lead in the production and application of knowledge through creative, practical, and innovative forms of research and teaching. In this moment of growth and success, we also look back at a rich history of excellence to recognize those who have contributed to this university’s intellectual fabric, making it what it is today — an integrated AAU research university and member of the Committee on Institutional Cooperation with leading programs across all schools. Growing over the centuries from a colonial college, to a land-grant institution, to the recent inclusion of the medical school, Rutgers continues to serve the needs of not only New Jersey, but the entire globe. At the center of that growth and development are the scholar-teachers who make up the faculty and who, through their scholarship and pedagogy, make Rutgers one of the top universities in the world. We invite you to share in the revolutionary research at Rutgers by joining Byrne Seminars for 2015-2016, and we look forward to celebrating together our university’s history, our exciting present, and our ever-expanding future.
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FROM THE CHANCELLOR

As we celebrate our 250th anniversary during the coming academic year, we will have so many opportunities to reflect on the history and legacy of this great university. From our revolutionary beginnings as one of the nation’s nine original Colonial Colleges, Rutgers has grown into a world-renowned, comprehensive public research university. To say that education has been transformed during this time is to state the obvious: our students and faculty are conducting cutting-edge research using state-of-the-art technology while collaborating in real time with colleagues around the world to address some of the most pressing issues of our time. Yet, I believe that the essence of education has remained remarkably unchanged—inspiring teachers igniting the intellectual passions of creative students, challenging them to become tomorrow’s leaders.

Thanks to the generous support of Dorothy and John J. “Jack” Byrne, we have built a first-year seminar program on this educational premise. Through the Byrne Seminars, incoming students are given the opportunity to study with our world-class faculty in small, discussion-based seminars at the beginning of their academic careers. These one-credit seminars are designed to encourage our students to explore new areas of interest as they develop their own intellectual focus. It is simply not possible for first-year students to appreciate the vast and varied academic opportunities available to them when they enter Rutgers. The Byrne Seminars provide a vital introduction, helping to define the contours of the sweeping scholarly landscape that lies ahead.

Students entering Rutgers during our 250th year are beginning their academic careers during perhaps the most exciting time in our University’s storied history. We have just completed an unprecedented integration with the former University of Medicine and Dentistry of New Jersey, creating Rutgers Biomedical and Health Sciences, which will offer a stunning new array of educational opportunities for our students. We are in the midst of the largest comprehensive capital construction phase in Rutgers’ history, and the buildings going up around all of our campuses will provide modern facilities for 21st-Century teaching and learning. And, of course, we just joined the Big Ten athletic conference and its academic counterpart, the Committee on Institutional Cooperation.

To help guide us during this transformative period, our University community worked together for nearly two years to articulate a vision for Rutgers’ future, which included creating a detailed strategic plan for Rutgers University–New Brunswick. Our institutional commitment to transforming the student experience provides the central axis for this plan, as we strive to ensure Rutgers is student-centered and relentlessly focused on student success. We are fortunate to be able to rely on proven programs like the Byrne Seminars as models for new initiatives to help us further enhance the student experience.

I strongly encourage all first-year students to browse the tremendous offerings from this catalogue and enroll in a Byrne Seminar. These seminars have helped thousands of students forge their academic path through Rutgers. Explore the fascinating topics from across the disciplines and see what a Byrne Seminar can offer you.

Richard L. Edwards
Chancellor, Rutgers University–New Brunswick
WHAT ARE THE BYRNE SEMINARS?

Byrne Seminars are small, one-credit courses, limited to 20 students. Offered through the Office of Undergraduate Academic Affairs, these classes are taught by our world-renowned faculty, who come from departments and professional schools across the university. Each unique seminar offers students the chance to experience the excitement of original research, as faculty members share their curiosity, their intellectual passions, and how they develop new ideas and fields of knowledge. Some seminars take field trips, do hands-on research, or share a meal at the Rutgers Club. Seminars typically meet for 10 weeks, starting in the first week of each semester. You may take up to two Byrne courses in your first year, in consecutive semesters. The seminars are graded Pass/No Credit, and have no formal exams. Students may register for a one-credit seminar in addition to the 12-15 credit standard course-load; the seminars are not meant to compete with other courses.

HOW DO I SIGN UP?

You can register for a Byrne Seminar when you select your other courses this summer or you can add a Byrne Seminar to your schedule online through WebReg during the first week of classes. This catalog also includes section and index numbers for each fall seminar below the course description. You may find the Online Schedule of Classes useful in determining which courses are open and will fit best into your schedule. Enter subject code “090” and course number “101” to get a list of Byrne Seminars for the semester, including up-to-date information about time and location.

HAVE QUESTIONS?

Email Angela Mullis, Director at: byneseminars@rutgers.edu / Call 848.932.7865
Or visit our website: WWW.BYRNE.RUTGERS.EDU
FALL 2015
FROM THE DIRECTORS

The Byrne Seminars and Aresty Research Center continue to provide innovative programming through the Office of Undergraduate Academic Affairs, and this year we are offering fall and spring seminars through our Aresty-Byrne Program. This two-year program is designed to take students from the classroom into labs, archives, and the field. Following their Byrne Seminars, students will, in their sophomore year, participate in Aresty Center research training, working with advanced students to develop research skills and with faculty to explore their ideas through experiential learning.

Traditional Byrne Seminars are designed to introduce incoming students to Rutgers faculty and to the exciting research being conducted at one of the nation’s top research institutions. The Aresty Center builds on this introduction by placing undergraduates with faculty mentors. With the Aresty-Byrne Seminars, these two signature educational initiatives in the Office of Undergraduate Academic Affairs are collaborating to meet the increasing student demand for research-based learning opportunities.

Aresty-Byrne Seminars will take traditional Byrne Seminars one step further and ask students to participate in their professors’ research through the practical application of knowledge. In other words, these seminars will challenge students to develop and practice next-level research methods to contribute to the process of creative thinking.

Finally, Aresty-Byrne students will be more competitive applicants for the Aresty Research Assistant Program. In fact, some will even become Research Assistants to their Aresty-Byrne Seminar professors the following year. And some students in the Aresty-Byrne Seminars will have the distinct opportunity to present at the annual Aresty Undergraduate Research Symposium.

We invite you to begin your Rutgers experience with an Aresty-Byrne Seminar.

Angela Mullis  
Director of the Byrne Seminars

Brian Ballentine  
Executive Director of the Aresty Research Center
WATCHING THE EARTH BREATHE: VALIDATION OF THE SPACE-BASED CARBON OBSERVATORY

Ann Marie Carlton (Environmental Science) and Mark Miller (Environmental Science)

Scientists who study climate change need detailed information about carbon dioxide (CO2) in the Earth's atmosphere. NASA's Orbiting Carbon Observatory-2 (OCO-2), launched in July 2014, is the first dedicated Earth remote sensing satellite to study atmospheric carbon dioxide from space. OCO-2's mission is to characterize regional CO2 sources and sinks, and to quantify variability in seasonal cycles. Critical to OCO-2's success is validation of space-based methods that could be used for future monitoring. Students will contribute to this important effort through direct measurement of CO2 with mobile sensors. We will measure CO2 at the surface and aloft (using a drone) in the footprint of the OCO-2 when it is overhead. Students will learn how to compare surface point measurements and vertical profiles of CO2 with satellite column measurements. Quality control and quality assurance principles to ensure data quality in CO2 measurements will be fundamental to the course.

11:090:101 section 22 index 18553

DATA MINING IN THE HUMANITIES

Francesca Giannetti (Rutgers University Libraries)

Popular media often portray “big data” as the exclusive province of information scientists, but data collection in the humanities can swiftly exceed the capacity of the human brain to analyze. Increasingly, humanists turn to digital tools to conduct quantitative research on literary texts, websites, tweets, images and sound recordings. How does one create or reuse a humanities data set? What tools are used to store, manipulate and process that data? How does one begin to analyze data using visualizations? This course will explore the methodologies of both quantitative and qualitative analysis in the humanities using free and open source digital tools to yield new insights into data that would otherwise be difficult to obtain. Through lectures, discussion, labs, and a digital final project, students will familiarize themselves with the tools of digital scholarship and form complex arguments on the basis of a few simple computational techniques.

01:090:101 section 42 index 11453

TREES: YOUR CAMPUS AND THE ENVIRONMENT

Jason Grabosky (Ecology, Evolution and Natural Resources)

Trees, like Rutgers, can exist for 250 years and longer. Many of the forests in New Jersey are described by the dominant species of tree in that plant community, and forest types change depending on where you live. Of course there are reasons why some tree species grow in New Jersey but not elsewhere. In this seminar, we will explore how the environment influences what trees occur where, and why they look the way they look. We will do this while exploring the campuses and natural spaces of Rutgers, New Brunswick. Finally, we will discuss major forests and trees in North America and consider how a changing climate suggests a changing forest.

11:090:101 section 23 index 18554

WEEDS: WHAT ARE THEY GOOD FOR? LIFE AND DEATH AMONG UNWANTED PLANTS

Lena Struwe (Ecology, Evolution, and Natural Resources)

Weeds are now everywhere; they invade our carefully designed gardens, our agricultural fields, take over our forests, and wreak havoc in our ecosystems. Weeds are also important resources, as wild foods, biofuels, dyes, and herbal medicines. Should we try to kill all weeds? Or should we love them? Where did the weeds come from, and where are they going? Are there more weeds now than in the past? Are there really any weeds at all? The seminar will include edible plant walks, research trips to parking lots for biodiversity weed inventories, blogging, and frequent discussions focused on the importance of weeds in art, design, science, food, and sustainability.

11:090:101 section 20 index 14984
The Honors College at Rutgers University - New Brunswick provides students from a range of undergraduate schools with an interdisciplinary, research-focused living-learning educational experience. In partnership with the Honors College, the Byrne First-Year Seminars Program is pleased to offer seminars specifically designed for incoming Honors College scholars. Honors College Byrne Seminars are intended to introduce students to the kind of interdisciplinary study that is a cornerstone of the Honors College’s mission through small courses that build on faculty members’ research interests. In addition to these select Honors College designated seminars, Honors College scholars have the opportunity to enroll in any traditional Byrne Seminar to fulfill their first-year Byrne requirement.

**HACKING SOUND: A HANDS-ON INTRODUCTION TO ELECTRONIC MUSIC***

Steven Kemper (Music)

Since the late nineteenth century, musical pioneers have been harnessing the power of electricity to create new and exciting sonic results. In this seminar, students will learn about electronic and computer music by building and hacking their own electronic musical instruments. Assuming no previous experience, students will develop technical skills in acoustics, circuit design, human-computer interaction, microphones, recording, and synthesis. Students will also learn musical fundamentals, both as performers and composers in the ensemble of handmade instruments. The semester will culminate with a public performance of original music.

**THE ARROW OF TIME: STUDIES OF DECAY, ENTROPY AND TIMEKEEPING**

Amit Lath (Physics and Astronomy)

In this seminar we will investigate the concept of The Arrow Of Time by first understanding entropy. We will learn to use the Python programming language to calculate probabilities, and from that develop an understanding of entropy and the second law of thermodynamics. We will discuss the ideas of entropy and decay as they appear in literature and culture, including the hold they have in the collective imagination that leads to the rejection of quantitative metrics that show disease, war, and violence decreasing, and the average human condition improving. Finally, we will divide into groups to design and construct working time measurement devices. Using commonly available materials, the groups will make devices to measure one hour as accurately as possible. No clocks allowed!

**PAPER-BASED ELECTRONICS AND ART***

Aaron Mazzeo (Mechanical and Aerospace Engineering)

Paper is an ideal medium for folding (origami), cutting, embossing, casting, inking, and painting. Combine these attributes with electronic components on or within paper, and there are some interesting opportunities to build mechanical structures and add sensing, lighting, or color. In this hands-on seminar, students will have the opportunity to review state-of-the-art research in paper-based electronics, and then exercise creativity in an engineering lab to build their own electronic systems that they will design while keeping in mind aesthetics and artful creativity.
PAUL ROBESON AS A GLOBAL CITIZEN

Edward Ramsamy (Africana Studies) and James Whitney III (Senior Director, Student Access and Educational Equity)

The life and legacy of the esteemed Rutgers alumnus Paul Robeson embodies the idea of “global citizenship.” A towering figure in the African American struggle for human dignity and democratic rights, he connected this struggle with those of other peoples around the world, who were also fighting for political rights, cultural recognition and economic justice. For example, among many other social justice movements that he embraced, Paul Robeson pioneered the global solidarity movement against racial segregation and white supremacy in South Africa and supported and marched with various British union movements in the United Kingdom who were struggling for better working conditions. The aim of the proposed seminar is to introduce students to the life and legacy of Paul Robeson, especially with respect to how he tried to integrate “home” and “world” into his civil rights activism. The seminar has a four-fold focus: (1) to explore Paul Robeson’s formative years as a student at Rutgers and the challenges he faced as the only Black student in his graduating class; (2) to examine some of his artistic achievements as an actor on the stage and screen, especially his role in promoting African-American folk songs on the concert stages of the world; (3) to study his efforts to connect anti-fascism, anti-racism and anti-imperialism together; and (4) to examine his controversial associations with communist movements and the former Soviet Union.

01:090:101 section AC index 14974
THE “PROBLEM OF EVIL” IN PHILOSOPHY, LITERATURE, AND FILM
Trip McCrossin (Philosophy)
What do we mean when we say of someone that they have “the patience of Job,” when we complain that “bad things happen to good people, and good things to bad,” when we admit that we are somehow consoled in our distress by the assurance that “things always work out for the best?” What such sayings, complaints, and consolations share, among other things, is that they reflect together, arguably, the ongoing legacy of the problem known as “the problem of evil.” In this seminar, we will work together to understand a basic divide that has animated modern responses to the problem, as both a theological and secular one, and to trace the legacy of this divide in certain exemplary contributions to twentieth-century literature and film.

01:090:101 section 59 index 08394

GLOBAL ENVIRONMENTAL HEALTH: RUTGERS’ GLOBAL REACH!
Mark Robson (Entomology; Plant Biology and Pathology)
The world uses over five billion tons of pesticides every year, and twenty percent of these chemicals are used in the U.S., largely for agriculture. What are the consequences of pesticide exposure for human health and the overall health of our planet? In this seminar, we will discuss global environmental health issues, in particular those dealing with problems such as water and air pollution, food production and safety, and infectious and occupational diseases. Professor Robson will share experiences from developing countries in Southeast Asia and West Africa. Case studies and current research will be used as illustrations.

11:090:101 section 11 index 11804

ADDICTION
Mark West (Psychology)
Do people become addicted to technology? Although some students have direct or indirect experience with substance abuse, all will have experienced the lure of the iPhone, TV, web surfing, texting or playing video games. This seminar will encourage students to describe the behaviors they observe in themselves or others. We will explore the cognitive processes involved in starting, repeating or perseverating in technology related behaviors. The goal will be to discuss whether these behaviors are similar to or different from DSM-V criteria for addictive behaviors such as substance use, binge eating disorder, or gambling. We will come to understand the scientific knowledge created by clinical and preclinical researchers on addictions, including the neural underpinnings of behavioral and cognitive processes of the drug user. Ultimately, students will learn to identify warning signs in themselves or others when succumbing to self-defeating behaviors related to technology.

01:090:101 section 65 index 14968
WHAT DO CORPORATIONS OWE SOCIETY?

Mark Aakhus (Communication)

The social responsibility of business is to increase its profits, according to one of Rutgers’ most famous and influential graduates, the Nobel-Prize-winning economist Milton Friedman. Or is it? What do you think? Everyone in the world has a stake in answering this question because the conduct of business is central to the quality of our everyday life and planet: from the products we purchase — for example, seafood, toys, pet food, gasoline, pharmaceuticals — and the Earth’s resources used in making those products, to the type of work we do. In this seminar, we will examine the words and actions of modern corporations as they respond to pressures from government and consumer groups who demand more responsibility. In particular, we will explore how they communicate their social responsibility to us.

01:090:101 section 01 index 07090

MAD MEN, DEXTER, GONE GIRL, AND SCANDAL: TALES OF RACE, GENDER, AND PSYCHOANALYSIS IN EVERYDAY LIFE

Nikol G. Alexander-Floyd (Women’s & Gender Studies)

This seminar will explore popular culture through a psychoanalytic lens. Why does Dexter, the blood splatter analyst on the show of the same name, feel compelled to kill? Is Donald Draper, a hopeless narcissist? What drives Olivia Pope to be a gladiator? We will talk about popular TV shows and movies and the unconscious conflicts and experiences that drive popular characters that we love and sometimes love to hate. This will serve as an introduction to psychoanalysis, and to film and television assessment that reveals the connection among power, race, gender, class, and sex in everyday life.

01:090:101 section 04 index 13019

“MY NAME IT IS JACK HALL”: A HANGING SONG AND ITS ATLANTIC HISTORIES, C.1690-2002

Alastair Bellany (History)

Focusing on the 300-year history of a ballad written about the execution of a London housebreaker early in the 18th-century, this seminar explores the history of song and capital punishment in Britain and the United States. The seminar will introduce students to a wide variety of historical sources and methods, to the practice of cultural history, and to the difficulties and rewards of pursuing histories over broad chronological and geographical trajectories.

01:090:101 section 06 index 10142

RHYTHM, DRUMMING, AND BODY PERCUSSION

Robert Benford (Dance)

This studio course offers the opportunity to learn how rhythm underlies all aspects of life, and how these cycles can be translated into music and movement. You will be introduced to elementary techniques on conga and djembe drums, while learning to create and play music together in an informed way. You will learn the basic rhythmic solfege systems from Indian dance and music, and apply them to the learning of body percussion phrases. In addition, there will be an emphasis on relaxed body structure, including the use of voice and language as learning tools for rhythm. Ultimately, the class will include group creative projects in drumming and body percussion.

01:090:101 section 11 index 07096

ORAL HISTORY AND THE AMERICAN EXPERIENCE IN WORLD WAR II

John Chambers (History) and Shaun Illingworth (Director, Rutgers Oral History Archives)

Focusing on the remembered and represented experiences of Americans during the Second World War, this seminar introduces students to oral history of the common people as a methodology for helping to reconstruct the social and cultural history of the past. With the acclaimed Rutgers Oral History Archives, students will learn about conducting and evaluating interviews. Students will explore written and visual representations of World War II and have a chance to discuss the wartime experience in person with a guest veteran or person from the home front.

01:090:101 section 10 index 13024

BEYOND STARVING BABIES: UNDERSTANDING WEST AFRICA THROUGH FILM

Barbara Cooper (History)

What do you think when you hear the word “Sahel”? For many of us, the image we have of this region of Africa stretching from Senegal to Sudan is of starving babies and desert sands. In this course, we will draw upon the many thoughtful documentaries and feature films focusing on West Africa to try to understand the reasons for endemic malnutrition, but also to appreciate the landscape, economy, and lifeways of the people who live in this challenging but beautiful region.

01:090:101 section 03 index 08357
VAMPIRISM: HISTORY OF THE MODERN MYTH  
E. Efe (Comparative Literature; AMESALL)  
This seminar will cover the birth and growth of the vampire figure in the modern imagination, from the romantic era to our present. We will explore what went into the making of the vampire as a modern myth. In particular, we will analyze where the vampire stands in the history of blood, and what it has to do with the image of the Turk or the Oriental, with the Balkans or “the East of Europe.” We will look at the classical age of vampirism as a moment in intellectual history — one tied to the evolution of “circulation” at large, of goods, ideas, money, and again, of blood. While reading romantic poetry and tales, we will investigate the social, historical, and philosophical implications of the rise of the blood-sucking monster. These various contexts will enrich our discussions when we address vampirism in contemporary film and popular culture at the end of the semester.

01:090:101 section 18 index 07100

THE CURIOUS RISE OF DEMOCRACY’S GHOST: ANARCHISM  
Uri Eisenzweig (French)  
Few political notions are used as carelessly and randomly as “anarchism.” And yet, the concept has a deep philosophical and political meaning that goes back to the nineteenth century and the ideas of thinkers such as Proudhon, Stirner and Bakunin. We will examine some of these ideas and try to make sense of the socio-historical and cultural environment that saw their rise. In particular, we will focus on the way anarchism quickly became the embodiment of a diffuse fear of chaos and violence in Western society.

01:090:101 section 22 index 07103

YOGA: FINDING CALM IN CHAOS  
John Evans (Dance)  
This seminar will help you focus on finding calm in your life while joining the ranks of busy college students. Through the study and practice of yoga, we will explore how to build a stronger mind-body connection. This course will assist you in learning how the practice of yoga can support a happy and healthy life. Through centering and breathing techniques, strengthening and stretching yoga postures, and simple meditations, students will begin to gain a better sense of well-being. We will investigate mindfulness trainings and yoga sequences throughout the ten-week seminar.

01:090:101 section 24 index 07104

EXPLORE THE HUMAN PAST: AN ODYSSEY IN TIME, SPACE, AND EVOLUTION  
Craig Feibel (Anthropology)  
This course will explore the record of human prehistory through the lens of scientists and explorers. A central theme in our approach is for each class to transcend time, meshing prehistory, history, and modern-day scientific investigations. Working from our own research in the West Turkana Archaeological Project (Kenya), we will link this to an historical perspective of research by luminaries including Louis and Mary Leakey, F. Clark Howell, and Glynn Isaac. Modern-day and historical investigations will be further linked by their shared theme of exploration, as forays back into the wild African savanna from which our ancestors emerged.

01:090:101 section 15 index 07098

REVOLUTIONARY ART  
Tatiana Flores (Art History)  
This seminar addresses the topic of revolution as it relates to the visual arts, taking the topic of “revolution” to address both artistic and social movements. As such, the course follows a historical sequence beginning with art of the European Renaissance and the advent of perspective. Then we will address the visual production of the French Revolution, and then turn to the Western hemisphere to examine and compare the art inspired by independence movements. We will also discuss the advent of modernism as another revolutionary moment, turning to the Russian Revolution, and then to twentieth century revolutions in Latin America (Mexico, Cuba, and Venezuela), and to radical social movements, including civil rights and feminism. The seminar includes a field trip to the Museum of Modern Art in New York City.

01:090:101 section 27 index 07106

READING-SQUARED: THE GREAT GATSBY  
Martin Gilsberman (English)  
We use words constantly, but rarely pause to appreciate their complexity. This seminar proposes ways to read narratives to find their core significance by looking at the complex web of word families. Over the course of the semester we will examine a classic American novel of the 20th Century — The Great Gatsby — to see how a writer builds a set of characters and a story. The seminar meetings will initially focus on reading the novel and developing ways to talk about words, we will then learn about software that helps analyze word networks and relationships, and finally, we will use all of these techniques to demystify some of the processes of meaning making in the novel. The work we will be doing in the seminar is directly related to an ongoing research project on a group of one hundred novels written between 1719 and 1997. The project, teXtRays, investigates networks of meaning in novels at both the micro and macro levels — it is looking for large patterns about all the novels, but it is also looking at fine details within individual texts. For more information, see teXtRays.com and ReadingSquared.com.

01:090:101 section 38 index 08360
MUSICAL POETRY: A JOURNEY THROUGH THE CLASSICAL ART SONG
Barbara Gonzalez-Palmer (Music)
Since the late 18th century, classical art song has attempted to heighten our experience of poetry — an already independent art form. Some of the greatest works of music are in these magical miniatures, written by such masters as Beethoven, Schubert, Schumann, Brahms, Debussy, Barber, Copland, and countless others. Through a musical “tour” of art song, we will explore the close relationship between text and music, pianist and singer.

LEARNING GLOBAL ISSUES THROUGH FILM
Fakhri Haghani (Middle Eastern Studies)
Cinema is a means of expression. It is a communication tool, a language and a message. As Lebanese filmmaker Jocelyne Saab has said, “Cinema is life.” Films do reflect the reality around us. This course leads students to explore the study of films as one of the 21st century’s most innovative interdisciplinary fields of research into the revolutionary productions of knowledge. The course introduces students to foreign cultures and global issues through films from around the world. It will generate discussion in history, politics, culture, literature, art, environment, food, fashion, and family. Students will come to a new understanding of international issues from a critical thinking perspective. The course includes a field trip.

LATIN MUSIC U.S.A.
Eduardo Herrera (Music)
In this seminar, students will explore the making, playing, and dancing of Latin music in the United States. We will use case studies in salsa, reggaeton, Latin jazz, hip-hop, Chicano and Latin rock, cumbia, bachata, merengue and electronic dance music to explore how Latin America is not a geographical location but a set of ideas and relationships that cross the boundaries between North, Central, and South America. In other words, we will be looking at the United States as yet another site for the production, consumption, and articulation of Latin American and/or Latino/a expressive culture. We will address broader questions as they emerge within these case studies: What do we learn through music about transnational, post-colonial, or local-global relationships in the Americas? What is the role of migration, digital technologies, and mass media in the creation, transmission, and interpretation of expressive cultural practices? And finally, how does music mediate identifications as American, Latin American, and Latino/a?
INTERSECTIONS AND INNOVATIONS IN MUSIC:
CLASSICAL AND POPULAR CROSSINGS OVER
Maureen Hurd (Music)
The worlds of classical and popular music are often perceived to exist separately, but throughout history and especially in our current global society, folk and popular styles have influenced and are infusing classical music, and classical music has inspired and continues to spark creativity among popular musicians. This seminar will explore these intersections — sometimes revolutionary and generally innovative — in third stream, eclecticism, folk music, and in classical masterworks.

RACE AND PERFORMANCE
Douglas Jones (English)
What was Miley Cyrus thinking during the 2013 MTV Music Video Awards? Why is it that some of our most contentious conversations emerge from discussions about sagging pants or Halloween costumes? In this seminar, we will develop a critical vocabulary with which to address these questions and, more broadly, why concerns of race and performance remain inextricably linked in contemporary life. Specifically, we will use YouTube and music videos, sketch comedy, video games, and other contemporary performances to explore how race, as a category of identity, is not so much what someone is, as it is the effect of what someone does. Throughout, we will pay particular attention to the roles that the Internet, social media, and other technological advancements play in the production and unsettling of racial identity.

ANATOMY OF A BROADWAY PLAY
Marshall Jones III (Theater Arts)
Have you attended a Broadway play? Do you wonder about the steps it takes from audition to full-scale production? In this seminar we will examine a current show on Broadway from “soup to nuts,” that is, we will cover everything about the production of our chosen Broadway specimen including: reading and analyzing the script; understanding the director’s concept; casting; designing sets, costumes, and lights; promoting and publicizing; managing and budgeting, and more. Our course will culminate with a trip to New York City to see the Broadway show that we have chosen to focus on in the seminar.

LITERATURE AND THE 21ST CENTURY BODY
Stacy Klein (English)
The 21st century brings with it unprecedented challenges and opportunities for the human body: from the meteoric rise in cosmetic and transplant surgery, to charged debates over new reproductive technologies and genetic engineering, to the proliferation of transnational human trafficking, to increased reliance on prosthetics and mechanical bodies. How can literature help us to make sense of new social and scientific developments that have, quite literally, changed the shape of the human body? How might poetry and fiction, from both the past and the present, enable us to cope more gracefully with new body technologies and to find healthier relationships to our own 21st century bodies as well as those of others? This seminar will focus on poems, short stories, and imaginative essays that discuss the human body; authors may include William Shakespeare, Andrew Marvell, Walt Whitman, Andre Dubus, Nancy Mairs, Lucille Clifton, Sylvia Plath, Mark Strand, Mark Doty, and Rita Dove.

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THE TRIALS OF FRANZ KAFKA
Michael Levine (German)

The seminar examines three key moments in the life of Franz Kafka and the afterlife of his writing. The first concerns his reference to the traumatic, public breaking-off of his engagement to Felice Bauer as a “tribunal.” The second focuses on the connection between this humiliating experience and the novel, The Trial, on which he began work less than a month later. The third involves the recent Israeli trial conducted to decide who owns Kafka’s posthumous writings (including the manuscript of The Trial) which the author had asked his friend, Max Brod, to destroy after his death. Through an examination of letters, novels, literary criticism, and debates surrounding the Israeli proceedings, the course traces the theme of the trial through Kafka’s writings, examining in the process the relationship between life and art, the literary and the legal.

01:090:101 section 41 index 07626

LOOKING EAST: A DIFFERENT WAY OF LEARNING DANCE, LANGUAGE, TRADITIONAL ARTS AND CULTURES THROUGH MOVEMENT
Paul Ocampo (Dance) and Chien-Ying Wang (Dance)

This course will investigate various dances, traditional arts and culture of Taiwan, the Philippines, and neighboring countries. Through the language of dance, students will learn traditional arts and cultures using practices and modality that are fun, interactive and informative. This seminar is designed for students who want to expand their understanding of dance, language, traditional arts and cultures through movement and theatrical potential of the body using traditional foods associated with respective festivities. The food serves as a conduit for a holistic experience to deeper comprehension of Asian cultural arts and heritage. This seminar will include a field trip to New York City.

01:090:101 section 96 index 15216

SOCIAL MEDIA BEFORE YOU WERE BORN
Lorraine Piroux (French)

Nowadays, many of us in the Western world would find it rather difficult to make sense of who we are without social media. Much of the feeling that we exist in the eyes of others comes from the interactions we develop through social media and social networks. However, critics of social media have argued that these kinds of virtual interactions too often take the place of “real” contact with others. They also contend that social media users alienate their true self when they represent themselves on Facebook, Twitter and Instagram, etc. These kinds of debates, though, are not new. At other times in history, people have also relied on social networks and media in order to represent themselves to others, give meaning to their existence, and guarantee their integration into circles of social and professional advancement. In this seminar, we will go back in time to explore the ways in which French and English thinkers of the seventeenth and eighteenth-centuries have discussed the social nature of human beings and their desire to be socially integrated. Our goal will be to understand what these early modern modes of sociability can teach us about the way we construct our social lives today.

01:090:101 section 71 index 11528

FAUST’S BARGAIN WITH THE DEVIL: KNOWING IT ALL, LOSING IT ALL
Nicholas Rennie (German)

Faust, in Johann Wolfgang von Goethe’s famous play, is every university’s worst nightmare. Frustrated that his multiple academic degrees have left him knowing nothing of value, the aging scholar goes rogue: he gives up standard research for magic, he flees his study with the devil to go out and party, he uses his status to help him impress and seduce a much younger woman, he heads off on a world tour without regard to those he encounters or has left behind, and he becomes a capricious and dangerous tyrant. How, then, did the Faust legend become the quintessential myth of modernity? What does Faust experience and learn by selling his soul? How is he changed, and how does he transform his world? Is his story a celebration or a condemnation of the modern age of discovery — research, teaching, learning and self-exploration?

01:090:101 section 34 index 14978

ACTS OF THE IMAGINATION: EXPLORING CREATIVITY THROUGH IMPROVISATION AND PLAY
Julia Ritter (Dance)

This seminar will explore methods and techniques of improvisation and play as applied to the creation of dance theater. Students who take this seminar should be open to immersing their playful selves in creative games, experiments, and improvisations that use the body and the voice. This course is for anyone who loves to move and challenge themselves to solve problems with creative solutions. We will explore the movement and theatrical potential of the body using traditional and experimental techniques of dance improvisation. The seminar includes a field trip to New York City for a performance.

01:090:101 section 76 index 13039

ROCKIN’ ROOTS, GLOBAL REACH: TELLING THE STORY OF JERSEY’S POPULAR MUSIC
Jonathan Sauceda (Rutgers University Libraries)

Frank Sinatra, Whitney Houston, and Bruce Springsteen are just a few of the artists who have called Jersey home, but for centuries this state has been fertile ground for musical creativity. In this course we will work with Rutgers’ incredible, rare, and unique New Jersey sheet music collection, making the materials freely accessible and comprehensible around the globe. Students will learn about the popular music culture in the 1800s and early 1900s, as well as the meaning of and ideas behind open access. Each student will choose a piece of sheet music, digitize it, and create a finding aid that includes an explanatory essay, which will place the item in its social, historical, and cultural context. The finding aids will be edited and published online, providing students a clear outcome and showing them that their research can have real world implications. The class will include a field trip to the largest jazz archive in the world, the Institute for Jazz Studies in Newark.

01:090:101 section 23 index 14976
FRIENDSHIP IN JAPAN: A CROSS-CULTURAL INQUIRY

Paul Schalow (Asian Languages and Cultures)

At first glance, friendship seems a natural and unproblematic part of the human experience, a product of our need to be understood and appreciated by another human being. But when we think of the various forms friendship takes in different cultures and time-periods, the reality of friendship becomes surprisingly complex. Drawing on representations in Japanese literature, film, and pop culture, this seminar will explore various friendship themes related to bridging differences in gender, age, ethnicity, and cultural heritage. Students will be able to present their favorite book or film on friendship to the class, and then share their own knowledge of how friendship is represented in other literary and cinematic traditions.

01:090:101 section 80 index 11512

TRANSFORMING BODIES AND IDENTITIES IN AMERICAN CULTURE

Mark Schuster (Senior Dean of Students)

The American body has been transformed over time physically, socially, culturally, and politically. This course examines negotiated identities, “covering and passing” bodies through the lens of gender, sexuality, race, socioeconomic class, ability, and more. Class discussions will be based on cutting-edge and interdisciplinary research, journal articles, and book chapters. Social media, film, art, music, fashion, and pop culture will be considered to examine sites and spaces of the body. The evolving and transformed American body will cover the surgically embellished, ambiguous, surveilled, alternative, queer, roided, androgynous, oppressed, and the body as a political statement. Students will reflect on body fascism, bodies at war, falling bodies (figure skating, gymnastics, high wire, and circus acts), smashing bodies (NASCAR), collision sports, injuries, and reassembled bodies (prosthetics). A critical lens will engage the most recent research redefining the “healthy” body. The use and impact of American technology, robotics, and fantasy will be examined through examples from Barbie Dolls, action figures, Marvel comics, Comic Con, Trekkies, and vampire slayers, to C.S. Lewis, J.R.R. Tolkien, and J.K. Rowling.

01:090:101 section 82 index 13041

RETHINKING MAGICAL REALISM IN LITERATURE AND FILM

Ben Sifuentes-Jáuregui (American Studies)

Magical realism has often been reduced and conflated as a signature and singular literary genre in Latin American letters. This class will examine Gabriel García Márquez’s Of Love and Other Demons and other short stories by Clarice Lispector, Toni Morrison, Alejo Carpentier and others to understand the complexity of these fantastic narratives. We will review the relation between “lo real maravilloso” [the marvelous real as a regional, cultural expression] and “realismo mágico” [magical realism as a global phenomenon]. The course will then explore filmic representations of magical realism; these films include Guillermo del Toro’s Pan’s Labyrinth, Woody Allen’s Midnight in Paris, and Christopher Nolan’s Inception.

01:090:101 section 85 index 13044

A JOURNEY TO SATAN: DANTE’S INFERNO

Alessandro Vettori (Italian)

How better to take revenge against your enemies than to write a story about your trip to see Lucifer and place them in hell? The first part of Dante’s Divine Comedy is about strong emotions and the ferocity of being human — love, hate, anger, compassion, pity, violence, sodomy, and cannibalism — as much as it is about philosophy, theology, and poetry. In this seminar we will explore Dante’s masterpiece and its influence on modern literature.

01:090:101 section AE index 16390

GOD AND EVIL

Dean Zimmerman (Philosophy)

The Western monotheisms have converged upon a conception of God as “the most perfect possible person” — perfect in power, knowledge, and moral rectitude. All three traditions face the same dilemma: How to reconcile this conception of God with the evident existence of evil — suffering, ignorance, moral turpitude, and other non-optimal states. There have been many responses to the difficulty of reconciling the existence of evil with an omnipotent, omniscient, benevolent deity. The seminar will be a survey of the most promising.

01:090:101 section 70 index 14970
SOCIAL SCIENCES

TWITTER AND SOCIETY
Mary Chayko (School of Communication and Information)
This course will explore how the social media platform Twitter and its 500-million-plus users are revolutionizing society, social connectedness, and social interaction itself. Students will examine interdisciplinary research and theory on Twitter and social media use and how community and society have been impacted as a result. Students in the seminar will interact and engage on Twitter with course authors, guest “speaker-tweeters,” students from other universities, and one another, expanding the boundaries of the traditional classroom by using Twitter to study Twitter.
01:090:101 section 09 index 07095

RISK AND DISASTER IN THE MODERN DAY
Jacquelyn Litt (Dean, Douglass Residential College; Women’s and Gender Studies) and Lee Clarke (Sociology)
This course is about disaster. Why do disasters happen? To whom do they happen? How do those affected respond when they are in them? And how can disasters be prevented? Wait, what? Yes, disasters can be prevented. Events — earthquakes, plane crashes, nuclear meltdowns, hurricanes — cannot be prevented. But their effects can be (mostly) prevented. We can be warned against them, and we can arrange social affairs so that events either do not happen or they are muted in their effects. We will use cases of disaster old and new to investigate disaster and risk. This seminar will show how the glass is half full not half empty, as we develop a richer understanding of how society works.
01:090:101 section 50 index 09384

THE POWER OF ONE: UNDERSTANDING RESILIENCE AND RELATIONSHIPS
Caroline Clauss-Ehlers (Education Psychology)
No matter who you are or where you come from, your life is bound to be crowded with challenges. How do individuals successfully overcome challenges? This is the central question of resilience research, research on how people “bounce back,” adjust to change, and overcome adversity. This research shows that having just one important personal relationship is the most important factor that promotes individual resilience. In this seminar, we will explore resilience and relationships in the lives of students. After briefly reviewing the history of resilience research, including the professor’s own investigations in this area, our class discussions will connect resilience research with many types of relationships: mentors and peers in college, family relationships, relationships at work, and romantic relationships. We will also touch on resilience and gender identity.
01:090:101 section 25 index 07105

YANKEE STADIUM
Teresa Collins (Thomas A. Edison Papers)
Why did the Stadium cross the road? In this seminar we develop multiple perspectives on the history of Yankee Stadium and its epic journey from “The House that Ruth Built” to its current home in the Bronx, New York. We will observe and analyze a number of related themes and issues, including relationships between public finance, private enterprise, and urban development. The flexible, situational character of change and tradition is examined as well. Students will explore potential topics and methods for their own research development.
01:090:101 section 14 index 07097

THE BOOKS THAT MAKE US
Marija Dalbello (Library and Information Science)
In this seminar, we will examine the life-stories of select monuments of writing, such as Sumerian clay tablets, the original (Hokusai) manga, the Gutenberg Bible (the first major book printed with the printing press) and Carl Jung’s notebooks. We will consider their material life, the technologies necessary to produce them, and the meanings that they had for their contemporaries. How did people make these seminal works, and why? How do such important works help us make sense of our world? In what sense do these works represent revolutionary text technologies and how have they revolutionized the world of ideas? We will also think about writing itself as a technology that encompasses letters, drawings, graffiti, and illustrations; and learn how texts can be hand-written, painted, or inscribed, as well as mechanically and digitally produced. We will explore a wider context for circulation of books, texts, and reading. In order to view, handle and examine actual specimens, we will visit a library of rare books in the area or New York City, and use the collections of the Zimmerli Art Museum at Rutgers.
01:090:101 section 20 index 07101
MODERN TERRORIST MOVEMENTS: ISIL AND BEYOND

Eric Davis (Political Science)

Terrorism is now a fact of life in many areas of the world. What differentiates contemporary terrorist organizations like the self-described Islamic State (Syria and Iraq), Boko Haram (Nigeria), al-Shabab (Somalia), and Ansar Bayt al-Maqdis (Egypt) from earlier movements that were established in the 1970s, such as the FARC in Colombia, the Popular Front for the Liberation of Palestine, the Kurdish Workers Party (PKK) in Turkey, and the LTTE in Sri Lanka? Why did earlier movements operate within the framework of the Westphalian sovereign nation-state paradigm whereas terrorist movements today reject that framework in its entirety? Is the influx of youth into contemporary terrorist organizations an indicator of as well as a response to the decline of nationalism, the increase of transnational migration since the 1970s, or the disruption of the traditional family structure? Through this seminar students will better understand modern terrorism and the global threat that it poses. Development policies will also be discussed as part of a comprehensive counter-terrorism strategy.

SOCIAL NETWORKS AND SOCIETY

Marya Doerfel (Communication) and Matthew Weber (Communication)

How many “friends” do you have? Millions of people use social networking websites, such as Facebook or Twitter, nearly every day. Even before the Internet, the way we communicated with friends, family, and colleagues created “networks” that connected us with one another, but also produced limiting social boundaries. Simply put, as long as people communicate with each other, social networks exist, with both expansive and constraining effects. This seminar introduces you to how scholars study social networks and use them to make sense of society. We will examine how our forms of communication affect our opportunities to achieve our goals and to manage our relationships. We will also look at how our communication builds up into large entities — organizations. In all, we will explore how our social networks help to create the fabric of society.

01:090:101 section 19 index 10165
01:090:101 section AF index 16636
JOIN THE LEADERSHIP REVOLUTION: IT'S NEVER TOO EARLY TO BE A LEADER

Maurice Elias (Psychology)

Throughout history, and certainly during the history of the United States and Rutgers University, progress has been synonymous with leadership. The revolutionary understanding of leadership is that it is everywhere and in everyone's capacity. It is not something one waits for. This seminar reviews research and theory toward the goal of empowering students to be leaders in all aspects of life including college, career, and community. Topics include leadership in academic, corporate, and nonprofit career contexts and gender and leadership perception, style, and myths. The course includes readings and discussion, debate, role-play scenarios, and real-world visibility and exposure to leadership with distinguished guest speakers from academic and career leadership contexts.

01:090:101 section 21 index 07102

MORAL AND ETHICAL DILEMMAS IN EMERGENCY PREPAREDNESS, DISASTER RESPONSE, AND HOMELAND SECURITY

John Farmer, Jr (School of Law; Special Counsel)

Each week, this seminar will explore different moral/ethical dilemmas in the context of emergency preparedness, disaster response, and homeland security. The first session will include an introduction to the accountability structure for emergency preparedness and disaster response at the federal, state and local levels. Subsequent sessions will be topic specific, and include the following areas: (1) active shooter/mass casualty scenarios; (2) violent extremism and bias crimes against faith-based communities; (3) explosive and incendiary incidents; (4) biological threats; (5) chemical and radiological threats; (6) environmental disasters; (7) criminal/suspect profiling; (8) use of enhanced interrogation techniques by the United States; (8) mandatory quarantine of individuals; (9) forced evacuations; and (10) domestic intelligence collection, including cybercrime and cyberterrorism.

01:090:101 section 39 index 13033
WHY IS IT SO HARD TO “JUST SAY NO”?: TOPICS IN ADDICTION
Laura Fenster-Rothschild (Center of Alcohol Studies) and Robert Pandina (Director, Center of Alcohol Studies)

Team-taught by faculty affiliated with the Rutgers Center of Alcohol Studies (CAS), this seminar explores issues surrounding addictive behaviors, especially as they affect contemporary college students. Through discussion, we will develop a broad context for understanding both addiction and efforts to address this personal, social, and public health problem. The course highlights research in the addictions and the tools needed to search and evaluate both scientific and mass-market information, and includes a tour of the CAS research laboratories and library.

01:090:101 section 28 index 07107

THE SECRETS (AND BIG BUSINESS) OF SEARCH ENGINES
Melissa Gasparotto (Rutgers University Libraries)

“Googling” has become synonymous with searching, and those who google are often presented with thousands to millions of results. Yet research shows that people almost never go beyond the first page or two. Appearing on the first page of search engine results has become big business in the 21st century; yet users are often unaware that what they see when they search (and what they do not see) is influenced by factors like money. What makes some results appear higher in the ranking? How do companies stay on top of search engines’ trade secret algorithms to alter the way their own websites are found? More importantly, what are searchers not seeing? This seminar explores the factors and stakeholders of web searching. Students will learn to be savvy finders and consumers of information, with a clearer sense of who is watching them while they search, and the motivations and practices of the companies that provide the supposedly free services on which we have become so dependent.

01:090:101 section 31 index 07108

THE NEW THEORY OF HUMAN MEMORY
Arnold Glass (Psychology)

In this century, there has been a revolution in our understanding of what human memory is and of the neural basis for human memory. We will analyze five classic experiments that transformed the description of memory from a passive recording device to an active system that is constantly being transformed by new information. These include an experiment that reveals a surprising discontinuity between faces that are recognized and faces that are not recognized and an experiment demonstrating how easy it is to induce false memories.

01:090:101 section 28 index 07107

READING THE LANDSCAPE
Jean Marie Hartman (Landscape Architecture)

How do you come to understand places? Whether you are in the city or the country, the landscape tells a story about its environment, history, and use. Through readings by authors like William Cronon, watching videos of environmental artists and designers, and observing views and compositions during walks, we will develop your landscape reading skills. This process will help you integrate information to understand a particular place in new ways. For instance, you will conduct a study of a place you are familiar with; perhaps you will begin to see the ways a land-form is shaped and how agricultural use left its mark on today’s urban forest in your neighborhood park. This kind of landscape literacy will help you see familiar places with new eyes; it also trains you to understand, interpret, and enjoy new places more readily. This class is especially appropriate for students who enjoy the out-of-doors or are interested in travel. One Saturday trip to New York City focuses on the interaction between the history of the city’s development and current political and social issues.

11:090:101 section 25 index 18556

“HOME SAFE HOME”: CREATING HOUSING PROGRAMS FOR DOMESTIC VIOLENCE SURVIVORS
Andrea Hetling (Planning and Public Policy)

In this seminar, we will discuss a new policy approach to meeting the needs of survivors of domestic violence. Permanent supportive housing programs aim to provide safe and permanent housing with an array of voluntary programs for women and their families. We will begin by learning about the dynamics of intimate partner violence and the traditional ways agencies have served survivors. We will hear from advocates and researchers about the positive and negative aspects of this new movement and read first-hand accounts from survivors. Based on these experiences, we will draft letters to public officials expressing our views.

01:090:101 section 32 index 07623

CRIMINAL COURT WAR STORIES
Milton Heumann (Political Science)

This seminar begins with the reading of an engaging journalistic account of the world of criminal justice in a Chicago courthouse. Next, we will discuss the general context of criminal-case processing in the U.S. And finally, four or five leading criminal attorneys will visit our class and share the one case that stands out in each of their legal careers. Their “war stories” will include detailed descriptions of these cases, including an analysis of the key decision points made along the way. Through class discussion, students will develop their own considered views of the final results of each case.

01:090:101 section 33 index 07109
ENERGY IN HISTORY AND CULTURE
David Hughes (Anthropology)
Energy is everywhere. Unfortunately, the modern obsession with fuel and its uses has caused us to lose sight of this ubiquity and plenitude. This course will follow energy — and the consciousness of energy — across the landscape and through history. Breezes, for example, powered transportation long before wind turbines began generating electricity. In crossing oceans, sustainability began with sail. Selected from major texts, modest readings will range from Rick Bass’s Oil Notes to Richard Wrangham’s Catching Fire: How Cooking Made us Human. Ultimately, students will be emboldened to appropriate energy in everything from growing plants to clotheslines — and to insist that broader society do the same.

01:090:101 section 60 index 10175

U.S. BANKS IN CRISIS: LESSONS FROM THE PAST, QUESTIONS FOR THE FUTURE
Joseph Hughes (Economics)
Before the current banking crisis, the U.S. last experienced a financial upheaval in the latter half of the 1980s and early 1990s in the savings and loan and banking sectors. Failures of financial institutions surged in the late 1980s and again began to rise dramatically in 2008. Government took strong action to address the crisis in each period, and in both instances has received blistering criticism for its attempts to bail out the largest banks. We will address questions of “moral hazard” in the financial system, and the degree to which government action creates and/or is constrained by moral hazard. In this seminar, you will have the opportunity to do original research with the professor by working directly with bank data. This is a rare chance to gain a hands-on understanding of modern banking, bank crises, and what constitutes a sound financial institution.

01:090:101 section 36 index 07111

THE ECONOMICS OF COLLEGE AND PRO FOOTBALL
Mark Killingsworth (Economics) and Randall Smith (Sociology)
This seminar will describe and analyze two very different “industries”: college football, and professional football. These two industries are full of paradoxes. Pro football players are paid big salaries, but their careers often are very brief, and the risk of injury is very high. Big-time college football generates millions of dollars in revenue, but college football players do not receive a salary. Both colleges and professional football teams build large and expensive stadiums, frequently with taxpayer subsidies. At both the college and pro levels, many coaches receive multimillion-dollar salaries. Where does all this money come from and where does it go? Should the government regulate college and/or pro football more stringently, or more leniently? Should taxpayers continue to fund stadiums for college or pro football? What are the factors that affect coaches’ salaries? Is there evidence of racial discrimination in pro football players’ salaries? This seminar will explore these questions and more.

01:090:101 section 48 index 11454

STRESS, HEALTH, AND DISEASE
Alexander Kusnecov (Psychology)
Why are you more likely to get sick during final exam week than during any other part of the semester? Can “germs” make you feel like you have depression, give you schizophrenia, or affect your brain development? Is stress always a health risk? This seminar will explore how stress and psychosocial factors affect disease processes that involve the immune system, the body’s defense against disease and infection, and a source of inflammation. Stress can compromise the immune system, leading to illness; but researchers have discovered that the opposite is also true: inflammatory immune responses influence brain and behavioral function. Thus, some immune responses have been linked to diseases affecting mental health. We will discuss links between stress and rates of infection, cancer, and autoimmune disease. In addition, we will learn about connections between inflammatory immune processes and depression, schizophrenia, autism, and Alzheimer’s disease.

01:090:101 section 52 index 07115
CLIMATE CHANGE: IDENTIFYING SOLUTIONS THROUGH SUPPLY CHAIN ARCHAEOLOGY
Kevin Lyons (Supply Chain Management and Marketing Science)

Supply chain management and archeology are two academic disciplines that rarely cross paths. Archaeology is the scientific study of past cultures and the way people lived based on the things they left behind or discarded as post-consumer waste. Supply chain management involves the movement of man-made materials as they flow from their source to end-users (customers). In this course we will explore and learn how to combine these two disciplines to research and discover opportunities to address climate change impacts by studying product life/death-cycles, consumption, and our discards. We will conduct in-class and virtual archaeological digs at waste and dumpsites globally to look for climate impacts while identifying new eco-product design solutions.

01:090:101 section 57 index 12735

YOU AND THE 2016 ELECTIONS: WHAT TO WATCH, HOW TO WATCH, AND HOW TO PARTICIPATE
Ruth Mandel (Political Science)

On November 8, 2016, voters will finally decide who will occupy the White House and who will serve in the House and Senate beginning in January 2017. Many of you will be first-time voters in this historic election. In this seminar, we will talk about the politics of this very long election season and try to understand the dynamics on the ground. We will invite guest speakers from various programs inside the Eagleton Institute of Politics and snag a variety of visitors from the heat of campaigns to tell us what to watch, how to watch it, and how to participate in ways large and small. What are the fights about? Why are some states seemingly more important than others in a presidential year? What issues will have the biggest impact on the 2016 elections? What is opposition research? What is the impact of negative advertising? How can we tell a good poll from a bad one? Who is donating money to the candidates? How is money raised and spent in presidential elections? Do candidate debates matter? What is the role and impact of today’s media in our national elections? Are some groups of voters more important than others? What is the “gender gap”? Do endorsements by newspapers, political leaders, labor unions, musicians, and TV/Hollywood celebrities matter? What about your vote — does it matter?

01:090:101 section 61 index 11526

THE POLITICS OF CHANGE: FRANKLIN D. ROOSEVELT AND THE AMERICAN NEW DEAL
Norman Markowitz (History)

When Barack Obama was elected to the presidency in the midst of a stock market crash and fears of a great depression, some Americans hoped and others feared that he would launch a “New New Deal.” Why was this so? During the Great Depression and WWII, the administration of Franklin D. Roosevelt established Social Security, Unemployment Insurance, minimum wages, the forty hour week, the right of workers to form trade unions and bargain collectively, along with the regulation of Banking and Wall Street, the most far-reaching changes in the role of government in U.S. history to that time. We will examine how these changes, considered impossible by most in 1929, became policy by 1939. We will study the role of and constraints on presidential leadership, formal political parties, and the significance of mass organizations and interest groups in the struggles that led to the formation of the bipartisan New Deal Coalition and its rival in all areas of American economy, society, and culture, the bipartisan conservative coalition. Through the use of selected secondary sources, primary documents, and audio and video clips of the period, we will study the politics of change during the New Deal era and its lessons and legacies for today.

01:090:101 section 30 index 19798

YOUNG ADULT LITERATURE: EXPLORING GLOBAL TEXTS AND DIGITAL WORLDS
Cheryl McLean (Learning and Teaching)

In this seminar we will discuss a range of contemporary young adult (YA) texts and examine how digital media shapes perspectives and practices. We will also uncover what it means to be a global citizen by exploring the diverse cultural worlds and identities represented in global non-traditional and contemporary YA literature. The YA global texts include graphic novels, anime/manga, movies/films, fantasy, sci-fi, video games, memoirs, realistic fiction, biographies, and narrative nonfiction. Using interactive, multimedia-based, collaborative sessions (e.g. blogs, videos, and multimodal presentations), discussions will address issues of identity and culture, digital technology and media literacy, and censorship.

01:090:101 section 61 index 11526
GOVERNOR, PRISONER, FOUNDER, QUAKER: THE LIFE AND TIMES OF WILLIAM PENN
Andrew Murphy (Political Science)
Many Americans have heard of William Penn, and may have a vague idea that he is the figure represented on the Quaker Oats box, or that Pennsylvania was named after him. He isn’t, and it wasn’t. Curious? Join us in this seminar where we will learn all about this fascinating seventeenth-century political thinker and politician, who influenced not only the founding of Pennsylvania (who was it named after, really?), but New Jersey, New York, Delaware, and Maryland as well. We will read original works by Penn and his contemporaries and visit his home, Pennsbury Manor, as well as one of the oldest Quaker meetinghouses in the country. Along the way we will learn a lot about English and American history, the development of religious freedom, and what it means to study a historical figure like Penn, who moved between England and America — and from the corridors of power to the poorhouse — over the course of a long and eventful life. Students will not only read some of Penn’s important work, but will also have the opportunity to take a field trip to Pennsbury Manor, Penn’s country estate in Pennsylvania; and participate in an international conference on Penn’s life and legacy to be held at Rutgers in November.

UNDERTANDING THE PLANNING AND REDESIGN OF HEALTHY CITIES IN THE VISUAL AGE
Anton Nelessen (Urban Design)
Are you interested in how cities will grow in the future? This seminar will prepare you for potential careers that will plan, engineer, communicate, finance, and implement policies and plans for the new millennial generation of cities. You will be exposed to a range of proposals and plans from cities worldwide that characterize livable cities, and incorporate environmental sustainability, new forms of mobility, mixed use green buildings, vertical gardens, and new public places. The politics and financing of implementation, public mental and physical health will be discussed. During the final session of the seminar, participants will be asked to present their visions for healthy cities in the future.

COLLABORATION FOR LEARNING AND PERFORMANCE
Angela O’Donnell (Education Psychology)
This course will introduce you to collaborative and cooperative learning. We will explore ways to create successful learning and work teams. The content of the course is intended to provide some practical help to people who wish to use cooperative and collaborative learning in their classrooms or in other situations. We will explore what it means to be collaborative or cooperative and what impediments there might be. The primary focus of the course is on understanding why one might use cooperation or collaboration by examining underlying theory that might inform practical choices. The course will explore the journey towards a cooperative spirit and the outcomes that can result.

MEDIA IN THE DIGITAL AGE
John Pavlik (Journalism and Media Studies)
Emerging communication technologies have the power to affect everything from personal relationships to presidential races to the success of a new restaurant. In this course, we will focus on understanding the changing nature and impact of digital technology on media and society, including social media, and their consequences, especially implications for civility, democracy, journalism, and beyond.

FUNDRAISING FOR INTERNATIONAL CAUSES: EFFECTIVELY UTILIZING CROWD-SOURCING AND OTHER SOCIAL MEDIA FOR GLOBAL CAUSES
Ronald Quincy (School of Social Work)
In this seminar, we will examine the challenges that nonprofit organizations encounter to amass the assets and resources needed to manage their charitable and public services. Traditional and nontraditional fundraising methods will be discussed, along with marketing principles. You will learn the art and science of “asking” for money, inside tips on successful grantsmanship; and how to write winning funding proposals. The seminar will focus on “how to land the big fish.” Readings and discussions will be drawn from newsletters, journals, writings of top fundraisers, and “best practices” scholarship in this field of study. Following the course, students will be able to write grant proposals, and enhance their techniques on how to “ask” for funding.
THE SELF AND ITS DISORDERS

Louis Sass (Clinical Psychology)
In this seminar, you will be introduced to current thinking about several personality disturbances or mental disorders that involve major alterations of the self or sense of identity: narcissistic, borderline, schizoid, and schizophrenic conditions. We will discuss theories from psychodynamic, cognitive-behavioral, and existential psychology. We will pay special attention to the perspective of the suffering individual, the possible relevance of modern and postmodern cultural factors, and the relationship between madness and rationality. The seminar offers an introduction to some key topics in contemporary psychiatry and clinical psychology.

01:090:101 section 46 index 14979

ECONOMICS IN THE NEWS: AN APPARATUS OF THE MIND

Neil Sheflin (Economics)
This seminar will offer a timely, topical, targeted introduction to economic reasoning and research through examination, analysis, and discussion of current economic issues. We will explore the workings of the market system and whether the invisible hand is absolute. In our discussions, we will focus on the determinants of prices, the impacts of minimum wage laws, and the causes and cures for unemployment, inflation, slow economic growth, and economic downturns. We will also address economic matters closer to home, including issues in personal finance, major and career planning, and investing. We will go behind the headlines and analyze research and critically evaluate many of these issues. Above all, each student will develop his or her own “apparatus of the mind” — the ability to use the tools of economics to solve problems.

01:090:101 section 83 index 13042

VISUALIZING DATA TO TELL A STORY

Anselm Spoerri (Communication)
Students will learn about the principles and techniques necessary to tell a story using data visualization tools. They will analyze examples of successful visual data stories and learn to create effective visualizations using tools such as Google Motion Charts and Tableau. Students will work in teams to collect and prepare a rich data set that can be visualized as an interactive and engaging data story.

01:090:101 section 87 index 13045

LANGUAGE GAMES AND TALKING HEADS

Karin Stromswold (Psychology) and Kristen Syrett (Linguistics)
Despite the diversity among the thousands of languages spoken in the world, there are striking similarities in the “tricks” that people and languages use. This seminar will explore what makes human language so special, the language games we play in communicating with each other, and what happens when communication goes wrong. Questions we will address include: What makes human language distinct from animal communication? How can brain damage and disorders affect language? Why can speakers get two very different interpretations out of the exact same string of words? Why do we end up singing song lyrics that are creative but absurd? Are speech errors really Freudian? What kinds of strategies do we use when we wish to convey — or avoid conveying — information? We will also explore how technology relates to language — why even the smartest computer programs still mangle the simplest sentences, how technology has infiltrated the way we communicate, how advances in technology allow us to investigate how children and adults acquire, process, and represent language.

01:090:101 section 87 index 13045

EXPÉRIMENTING NATIONAL PARKS AND PARKLANDS

David Tulloch (Landscape Architecture)
From Grand Canyon to Acadia to the Dry Tortugas, National Parks and Parklands are message wonderlands. This class will explore ways that National Parks (focusing primarily on those in the US) communicate messages to visitors. Published materials, such as the impressively consistent NPS brochures used at every park, and carefully designed signs provide an overt system of communication. Designers have also employed precisely aligned roads and buildings rich in symbolism to communicate with visitors at a different level. Finally, the very acts of inclusion (and exclusion) of different properties from the National Park system are meant to send an intentional message about the country as a whole.

11:090:101 section 15 index 12222

QUEER THEORY AND AMERICAN PUBLIC POLICY

Marc Weiner (Bloustein School of Planning and Public Policy)
By using queer theory as a mechanism of public policy analysis, students will become familiar with the concepts of researcher perspective, structural and institutional biases, and the nature of value-laden history. By demonstrating contrasting perspectives, students will come to understand that queer theory is but one lens through which history, of public policy or otherwise, may be viewed. At the conclusion of the seminar, students will be able to analyze a sociopolitical cause-and-effect through a known theoretical lens, and will be aware of the levels of analyses available, as well as the importance of understanding implicit structural and institutional biases in public policy.

01:090:101 section 64 index 14967

30 FALL 2015
THE ABCs OF PATENTS AND IP: HOW TO PROTECT YOUR CREATIVE INVENTIONS AND AVOID STEALING FROM OTHERS

Connie Wu (Rutgers University Libraries)

Young minds think big! Today’s students can be tomorrow’s entrepreneurs and inventors. New Jersey is the birthplace of Thomas Edison; as a great inventor, Edison has inspired creativity and sparked big ideas in others. In this seminar, we will learn from famous inventors and hone our own creative thinking process. This seminar will also introduce you to various types of intellectual property, with an emphasis on patents. Any student who wants to follow Edison’s footsteps needs to know how to protect their inventions. We will think about the uses of intellectual property and examine ways to protect your own valuable contributions while learning to avoid stealing the ideas of others. This seminar is particularly aimed at students interested in science, engineering, business, and law.

01:090:101 section 94 index 13091

CLOSING THE GAP: WOMEN IN SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Connie Wu (Rutgers University Libraries) and Laura Palumbo (Rutgers University Libraries)

Women have been historically underrepresented in the fields of science, technology, engineering, and math (STEM). Although women today are in leadership positions in STEM professions around the world, a gender gap still persists. This seminar will discuss the various reasons for the existence of this ongoing gender gap, and look at the sometimes little known contributions to STEM made by women in the past and present. We will also explore career opportunities in STEM, hear from female professionals working in these fields, and take field trips to University labs to meet with female scientists. This seminar will be of interest to students in STEM fields, history, journalism, communication, women’s studies, and business.

01:090:101 section 13 index 14985

“HERE TO STAY”: DISCOVERING 145 YEARS OF THE CHINESE EXPERIENCE IN NEW JERSEY

Tao Yang (Rutgers University Libraries)

New Jersey occupies a unique place in the journey of Chinese Americans, from two of the earliest Chinese settlements in the eastern U.S. that began in 1870, to a historical Chinatown in Newark that predated and outlasted the Chinese Exclusion Act (1882-1943), to a diverse and vibrant Chinese community that has been growing rapidly in recent decades. This seminar will introduce students to scholarly works and creative writings on Chinese in New Jersey and cover the experiences of both first-generation immigrants and the U.S.-born generations, from which students will develop a broad understanding of race, ethnicity, and social justice. Students will also improve and create Wikipedia articles on Chinese experience in New Jersey, through which students not only can help disseminate the knowledge about Chinese in New Jersey, but also develop critical thinking, information literacy, and writing skills.

01:090:101 section 69 index 14969

AMERICAN COLLEGE EXPERIENCES FOR INTERNATIONAL STUDENTS

Dake Zhang (Education Psychology)

In what ways is the college experience for international students the same as American students? In what ways is the college experience in the United States different from the experience if you studied in your home country? What do you expect from your college experience here and how do you look at the challenges that you will face? In this course, we will share our personal experiences and use statistic research results to recognize how culture, language, family, and educational experiences prior to college can affect our college experience, as well as how our college experience may influence our academic achievement, social wellbeing, and long-term career development.

01:090:101 section 89 index 18551

THE ECONOMICS OF AGING

Karen Zurlo (School of Social Work)

This seminar will explore issues that are relevant to the economics of aging. The Great Recession had an impact on families throughout the US, some more than others. Unfortunately, many adults who were nearing retirement or in retirement experienced a double whammy: loss of income and equity, and less time to make up for those losses. This seminar is organized around literature that informs students about retirement and the importance of any early start in the planning process. Students will be educated about topics related to well-being in old age, which include: saving, pension plans, the design and viability of Social Security and Medicare, Medicaid, long-term care, inheritance, and psychosocial supports. We will focus on the “construction of retirement” and the role of pension income and health in old age.

01:090:101 section 73 index 14971
BIODIVERSITY AND GLOBAL HEALTH
Diane Adams (Marine and Coastal Sciences)

The Millennium Development Goals challenged the world to improve the conditions for millions of people around the world. We have made great strides in improving global health, including reducing under-five childhood stunting from 40% to 25%, and nearly halving childhood mortality in two decades. We are now challenging the world to continue to develop in a “sustainable” manner. In this seminar, students will discuss and debate the role of environmental sustainability in maintaining and improving global health. Can we feed the world and prevent malnutrition without razing our forests, grasslands, and coasts? Will the most sustainable cures come from the lab, the forest, or the sea? Students will explore the tensions and areas of potential co-benefits between biodiversity conservation and global health using examples from around the developing world.

11:090:101 section 21 index 18552

APPLYING COGNITIVE SCIENCE TO PROBLEMS IN THE REAL- AND VIRTUAL-WORLDS
Deborah Aks (Center for Cognitive Sciences)

How do our minds search for and remember information? What are the cognitive processes that inform our reasoning and decision making? Can cognitive shortcuts that help simplify problems actually cost us in biased and erroneous reasoning? This course will explore these questions and more, providing students with an introduction to the field of cognitive science. We will examine cognitive science research and look at how research findings have informed our understanding of human cognition, paying particular attention to how this knowledge can be applied to real-world problems. Students will be introduced to essential processes from neurobiology, perception, and attention and how they are used in cognition. Finally, we will consider how our understanding of human cognition can help us overcome cognitive limits and improve problem solving in the real-world.

01:090:101 section 74 index 15471

DATA: WHAT IS IT GOOD FOR? (ABSOLUTELY SOMETHING)
Waheed Bajwa (Electrical and Computer Engineering) and Anand Sarwate (Electrical and Computer Engineering)

Data, ranging from the ordinary (Facebook posts, Twitter tweets, Instagram photos, and more) to the extraordinary (Higgs boson readings from the LHC project or seismic readings from a tsunami warning system), is destined to become as central to our society as electricity and telecommunications. It’s important that we become “data literate” — we should be able to understand the opportunities presented by collected data as well as risks posed by incorrect usage and interpretation of data. These skills are crucial for successfully negotiating our data-driven future. This seminar will start with the history and context of data collection and statistics, and then progress to our current situation, looking at how existing technologies are being implemented to handle the “data deluge.” We will then examine principles and pitfalls in handling this kind of data, from statistical issues to privacy. Finally, we will discuss visualization and the “visual rhetoric” of data with the seminar culminating in team student projects.

01:090:101 section 08 index 07094

THE DOCTOR IS IN: MALEVOLENT AND MAGNIFICENT MICROBES
Joan Bennett (Plant Biology and Pathology)

Microbes are organism too small to be seen by the naked eye. The best-known microbes cause diseases, but most microbial species are an essential and beneficial part of the living world. This seminar will explore the many roles of microbes: in food such as bread and yogurt, for beverage fermentations like wine and beer, as sources of biologically active chemical compounds including penicillin and hallucinogens, and in processes such as bio-deterioration and sewerage treatment. Students will also examine microbial diseases in human history, including plagues, syphilis, and tuberculosis.

11:090:101 section 02 index 08358

HIGH-TECH SUSTAINABILITY: FOOD FOR THOUGHT
A.J. Both (Environmental Science)

We all need (and love) to eat. But do you ever stop and think: how is your food produced and where does it come from? How can we maintain a safe and year-round supply? In this course, we will look at ways in which we can use technology to create more sustainable systems of agriculture. In particular, we will investigate the challenges and opportunities associated with greenhouse production. Students will be exposed to greenhouse crop production, review and discuss the necessary inputs required for greenhouse production, complete a writing assignment and make their own presentation discussing a topic related to greenhouse production.

11:090:101 section 01 index 07665
ENERGY IS CONSERVED: THE FIRST LAW OF THERMODYNAMICS AND THE ENVIRONMENT

Fuat Celik (Chemical and Biochemical Engineering)

When your smartphone battery dies, the first thing you look for is undoubtedly an outlet. But what about the energy needed to fuel our everyday needs and luxuries? Where does it come from? In this seminar, we will explore the conversion and conservation of energy in the modern economy. We will understand primary sources of energy such as the sun, fissionable atomic nuclei, and fossil carbon, and how these sources are converted into different forms in order to make them useful for a variety of applications, including transportation, residential and commercial heating, electricity generation, and manufacturing. We will complement our study of these topics with field trips to a coal-fired power plant, a fusion energy research facility, and Rutgers’ state-of-the-art natural gas cogeneration and solar power plants.

01:090:101 section 07 index 07093

EXPLORING NEW JERSEY’S ESTUARINE WATERWAYS

Robert Chant (Marine and Coastal Sciences) and John Reinfelder (Environmental Science)

Is the Raritan River ecosystem devoid of life or is it on its way back to becoming the “Queen of Rivers”? How are New Jersey’s rivers connected to the NY/NJ Harbor and the sea? Can the New Jersey Meadowlands keep up with sea level rise? After decades of declining water quality due to industrial activity, waterborne commerce, and population growth in the 19th and 20th centuries, the health of New Jersey’s waterways has improved substantially over the last 30 years. In this seminar we will explore the physical structure and current health of local waterways, including the Raritan and Hudson Rivers, Raritan Bay, Newark Bay, and the New Jersey Meadowlands in ship-board and shoreline surveys.

11:090:101 section 03 index 07666
ELIMINATING CANCER: NOVEL TARGETS AND THERAPEUTIC APPROACHES

Sunita Chaudhary (Rutgers Cancer Institute of New Jersey)

In this seminar learn how the most recent discoveries through cancer research are being translated into cutting edge treatments for cancer patients. New approaches utilizing computer-assisted diagnostics, medical imaging and statistical pattern recognition allow for a more accurate diagnosis of a range of malignancies. Comprehensive genomic profiling of tumors through next-generation sequencing technologies offers the promise of personalized cancer therapy with targeted drugs. We will discuss the innovative immunotherapy approaches that are being utilized to harness the immune system in the fight against cancer and translational clinical trials that are being tested to study novel drugs in patients.

01:090:101 section 12 index 13025

GREAT SCIENCE AND STORIES ON DNA, RNA, AND PROTEIN!

Samuel Gunderson (Molecular Biology and Biochemistry) and Alice Liu (Cell Biology and Neuroscience)

A primary purpose of this seminar is to introduce students to the many exciting and interesting stories on the discoveries of DNA, RNA, and proteins. We will begin with the 1953 publication of the DNA double helix structure by Watson and Crick. The excitement and genetic implication of this DNA double helix model remains palpable today. Next, we will introduce the “RNA world” hypothesis — that self-replicating RNA is the primordial “genetic molecule” which pre-dates DNA. And finally, we will learn how proteins, through epigenetic mechanism, can also function as an element of inheritance and as an agent of infectious diseases.

01:090:101 section AB index 14973

RUTGERS 250: A TASTE OF CULINARY HISTORY

William Hallman (Human Ecology)
Cara Cuite (Human Ecology)
Mary Nucci (Human Ecology)

Rutgers famously held its first classes at a tavern called The Sign of the Red Lion, located on the corner of Albany and Neilson streets in downtown New Brunswick. As Rutgers celebrates the 250th anniversary of its founding, this seminar will celebrate the food and related culture and customs that Rutgers students have enjoyed during its long history. It will give students an opportunity to taste and learn about a variety of foods, including dishes and ingredients that would have been familiar to students at different periods of Rutgers history. Along the way, students will learn about the transformation of the food system brought about by science and modernizing agriculture (and the role that Rutgers has played in these), changing consumer tastes and expectations, economics, and demographics. The semester will end with a celebratory meal, providing tastes of Rutgers culinary history during the last two and a half centuries.

01:090:101 section 27 index 18928 (Hallman)
01:090:101 section 28 index 18930 (Cuite)
01:090:101 section 29 index 18931 (Nucci)

TRADITIONAL ORGANIC FOOD AND FARMING SYSTEMS

Joseph Heckman (Plant Biology & Pathology)

Before supermarkets and the modern obesity crisis, we were closer to the source of our food. Fresh foods from fertile soil were consumed raw or specially prepared by fermentation. Milk, meat, and eggs were obtained from animals on pasture. Soils were maintained with compost and by keeping livestock and crops together. In this course, we will study traditional organic food and farming systems through field trips and from selected writings of organic pioneers. We will also explore the challenges and rewards of producing and preparing traditional farm fresh foods on an organic homestead, and learn how to connect with local organic farmers to secure these nutrient rich foods.

11:090:101 section 06 index 11503

IS SEA LEVEL RISING?

Benjamin Horton (Marine and Coastal Sciences)

This course examines the coasts of the world, how they have developed in the past, how they operate and are managed at present, and how they may develop in the future in the face of climate change and population expansion. The challenge of coastal science is to develop the capability to predict changes that will occur in the next decade to century from external (e.g., earthquakes and tsunamis, hurricanes, sea-level rise) and internal (e.g., sediment dynamics) processes. In this course, students will acquire hands-on experience on some of the procedures employed to study the coastal system through practical fieldwork and applied laboratory research methodology.

11:090:101 section 24 index 18555

ASTROBIOLOGY: IS THERE LIFE ON OTHER PLANETS?

Janet Huang (Molecular Biology and Biochemistry) and Gaetano Montelione (Molecular Biology and Biochemistry)

This course will explore the basic chemistry of life, what we know about the early evolution of molecular life forms, and how this is related to three basic factors: energy source, liquid state, and organic molecules. How did these appear on the earth and function together to create life? Does the right combination exist on other objects both inside and outside our solar system? And if so, how can we detect life? In order to answer these questions, we will consider what kinds of life forms exist on Earth and whether life on other planets would share similar characteristics, such as DNA and RNA. We will look at the role of asteroid impacts and comets in the evolution of life, the effect of solar wind, and the role of the Earth’s magnetic field and the Martian magnetic field. The course will include a field trip to the Rutgers Observatory or the Museum of Natural History’s Hayden Planetarium.

01:090:101 section 62 index 10201
DRUGS AND GENES: THE DEVELOPMENT OF PERSONALIZED MEDICINE
Michael Iba (Pharmacology and Toxicology)

What causes lactose intolerance, hay fever, or extreme reactions to peanuts or penicillin? What if scientists could create “personalized medicine” that targeted each person’s unique response to food and drugs? Some scientists are now saying that we can. Drug and food intolerance stems from genetic differences in individuals and affects their level of protection or susceptibility to toxins in foods or in the environment. These genetic differences, or mutations, have developed over the course of human evolution. In this seminar, we will learn about the history and role of genes in food, chemical, and environmental intolerance. We will also discuss the relationships between modern drug therapy, disease management, and genetics, and trace the development of personalized medicine.

01:090:101 section 37 index 13032

COMPLEMENTARISM: A SCIENCE-BASED PHILOSOPHICAL FRAMEWORK FOR INTEGRATING IRRECONCILABLE OPPOSITES
Sungchul Ji (Pharmacology and Toxicology)

Complementarism is the philosophical framework constructed on the basis of the postulate that the principle of complementarity formulated by N. Bohr in quantum physics can be applied to biology, philosophy, and religion. In this seminar, we will explore the version of complementarism that the instructor began to develop in the 1970s, motivated by two realizations. First, that information and energy are the complementary pairs that are essential for explaining the phenomenon of life. And second, that similar triadic relations exist in the philosophy of Lao-Tse (604 BC – ?), Aristotle (384 BC – 322 BC), Spinoza (1632 – 1677), and Maurice Merleau-Ponty (1908 – 1961). Students will be encouraged to apply the complementarian perspective to solving practical problems facing contemporary human society.

01:090:101 section 40 index 07112

BATTERIES, FUEL CELLS AND ALTERNATIVE ENERGY DEVICES
Lisa Klein (Materials Science and Engineering)

Batteries, fuel cells, and, alternative energy devices will be the focus of this seminar. Students will learn what is needed to improve current technology and what is required to make new technologies practical in the area of energy generation. The seminar will focus on energy storage (in devices such as batteries) and energy conversion (in devices such as solar cells). Other activities will include meeting researchers actively involved in materials research in energy-related fields and assembling and testing actual solar cells.

01:090:101 section 49 index 10172

SPACE EXPLORATION IN THE 21ST CENTURY
Doyle Knight (Mechanical and Aerospace Engineering)

This seminar will explore the economic, political, and social impact of the extraordinary growth of space exploration in the 21st century. In the previous century, space exploration was dominated by the U.S. and Soviet Union. But the past decade has witnessed unprecedented growth in both government and private space ventures, and space exploration is now a prominent activity in many nations. Currently, nine countries plus Europe (European Space Agency) are engaged in space missions, and more than 50 countries presently operate earth satellites for telecommunications, weather, surveillance, and other purposes. Three examples illustrate the breadth of 21st century space exploration: a private US company (SpaceX) now transports essential supplies to the International Space Station; China has now landed an unmanned vehicle on the moon; and India recently launched an unmanned space probe to Mars.

01:090:101 section 72 index 11529

HOW TO AVOID BEING HURT AND REPRESENTING YOURSELF WISELY ON THE WEB!
Casimir Kulikowski (Computer Science) and Charles McGrew (System Administrator – Computer Science)

Bad guys and bad groups of people can do us all much harm, if we are not careful. Being aware of threats to one’s privacy and confidentiality on the web is essential, as are the many ways in which one can either be deceived by others, or delude ourselves when we are in a hurry and do not think through our interactions over the internet, thereby failing to critically assess information on the web. The misuse, misrepresentation, and misinterpretation of data are omnipresent dangers we need to avoid, and, to do so, we must understand the underlying methods for good presentation and representation of both data and our interactions with others over the web.

01:090:101 section 51 index 07114

MIND-BODY APPROACHES TO MANAGING STRESS
Paul Lehrer (RWJ-Psychiatry)

You will learn about several ways that voluntary control of the body (muscles, heart, lungs, etc.) can help manage psychological stress and some psychiatric and medical diseases, which have direct application for everyone, from athletes to artists. The seminar will include personal training and research readings on such topics as progressive muscle relaxation, self-hypnosis, and biofeedback, and include experiential learning. You will learn to relax your muscles, to control your heart rate and skin temperature, and observe the effects on your emotions, sleep patterns, and tolerance for stress.

01:090:101 section 53 index 07628
ARE CITIES DESTROYING THE PLANET?
Robin Leichenko (Geography)
Cities are often portrayed as key sources of environmental pollution and major contributors to global climate change. Yet urban regions and urban lifestyles can also be highly efficient, and many cities have initiated innovative programs to reduce their carbon emissions. This seminar explores the role of cities as both sources of and solutions to global environmental change. The seminar includes a field trip to the High Line in New York City.

01:090:101 section 79 index 11903

THE EVER CHANGING WORLD OF PEDIATRICS
Ernest Leva (RWJ-Pediatrics)
Join us as we explore pediatric medicine, its rewards and challenges, and its unique physiology and pathology. Through lectures and discussions, you will learn about what makes children healthy and ill from the vantage point of various pediatric disciplines and subspecialties: cardiology, emergency medicine, general pediatrics, neurology, and rheumatology. Come and learn about new technologies and innovations as well as the tried and true medical and scientific knowledge used to treat children. Understand why children are at the same time the most vulnerable and resilient humans. This seminar will be team taught by a number of participating doctors at RWJ, including Dalya Chefitz M.D. General Pediatrics, Joseph Gaffney M.D. Pediatric Cardiology, Nandini Moorthy M.D. Pediatric Rheumatology, and Jan Wollack M.D. Pediatric Neurology.

01:090:101 section 35 index 07110

POLITICAL EARTHQUAKES
Vadim Levin (Earth and Planetary Sciences)
Natural disasters factor prominently in the history of human civilization, often altering the course of its development. This seminar will explore how earthquakes influence society — politically, economically, and culturally — using case studies that range from the Lisbon earthquake of 1755 to the Tohoku disaster of 2011 to illustrate the relationship between natural hazards and human activity. A brief primer on the present-day science of earthquakes will be followed by a discussion of a number of notable events when earthquakes lead to major changes in the society that was affected. Topics such as natural disaster risk mitigation, the possibility of earthquake prediction, and the role of science in keeping civilizations from harm will all be explored.

01:090:101 section 84 index 13043

BIOTECHNOLOGY FROM HOLLYWOOD AND BEYOND
Paul Meers (Plant Biology and Pathology)
Biotechnology has been perceived and portrayed in various ways by Hollywood and filmmakers around the world. In this course, we will explore the occasionally wide gap between public perception and the way science really “works.” Students will view and discuss the portrayal of bio- and nanotechnologies in popular movies from this country and select international films. Misconceptions and accurate portrayals will be analyzed to introduce students to a basic understanding of the latest exciting work in rapidly emerging areas such as genomics and epigenetics. Students will present thumbs up/thumbs down science movie reviews as a required assignment.

11:090:101 section 09 index 07669

WHAT DOES IT TAKE TO MAKE A DIGITAL COMPUTER?
Dimitri Metaxas (Computer Science)
This seminar will explore issues at the intersection of philosophy and computer science. We will explain in accessible terms how the search for the foundations of mathematics in the late 19th century led to the exploration of infinity and to the development of formal logic. We will also examine how the investigation of formal logic led to some of the deepest mathematical and philosophical results (Goedel's theorem and Church's theorem) and how this led to the development of the computer. Finally, we will discuss some philosophical and social issues that arise concerning computers and robots. For example, can computers think? And what if we can make computers that can build even smarter computers? We will use the recent presentation of these matters in Logicomix. See: logicomix.com/en.

01:090:101 section 56 index 11525

KIDS AND MEDICINE
Rachel Meyers (Pharmacy Practice and Administration) and Pooja Shah (Pharmacy Practice and Administration)
Everyone remembers receiving medicine when they were children — maybe it was amoxicillin for an ear infection or maybe acetaminophen for a fever. But how do medicines that were originally designed for and tested on adults work on children, an incredibly diverse population weighing anywhere from 1/4 lbs to 200 lbs? How can we give small children medicine that is only available as a tablet? How do we administer medicines intravenously in tiny doses to premature infants? How are dosages determined when there is no way to perform drug trials on children? In this seminar, we will explore the unique challenges of medication administration to children. Students will learn to think creatively about how to solve medication issues for children, providing excellent background and preparation for students interested in pharmacy, medicine, nursing, or parenting.

01:090:101 section 88 index 13046
FROM POLAR BEARS TO PALM TREES: NJ'S CHANGING CLIMATE

David Robinson (Geography)

With the devastation wrought by Sandy several years ago, questions have arisen as to whether this is a sign of more severe weather to come in future years. Recent years have also seen massive flooding in our river basins, the wettest year in over a century (2011) and the warmest year (2012). Clearly something is happening to our state's weather and climate, with several potential culprits to blame, foremost being the impact of humans on the regional and global atmosphere and landscape. This seminar will explore NJ's weather and climate in the past, present and future. We will examine the physical system, look at the potential impacts of change on the state, and discuss what can be done to mitigate or adapt to future changes.

01:090:101 section 77 index 13040

ENDOCRINE HEALTH AND DISEASES

Dipak Sarkar (Animal Science)

What are the health consequences of alcohol consumption? What is the relationship between stress, sleep disturbance, and alcohol abuse? Does childhood neglect affect mental diseases? This seminar will explore these questions, and more, as students learn about various research approaches currently being used in Rutgers' labs to understand how stress and alcohol consumption affect endocrine health and cause various diseases. Readings and discussions will focus on identifying the physiological mechanisms involved in various endocrine diseases.

11:090:101 section 13 index 11809

PETS AND PARASITES: A MODERN PERSPECTIVE

Michael Sukhdeo (Ecology, Evolution, and Natural Resources)

Ecologists and evolutionary biologists have largely ignored parasites until recently. New ideas from this fusion have led to major breakthroughs in our understanding of parasitism. This course will address the biology of parasites that infect our pets in America, focusing on dogs, cats and horses, but also including other animals. Natural processes that have evolved to facilitate transmission between hosts will be highlighted. The course will be fieldwork and laboratory intensive, and will include hands-on training in diagnosing and identifying common parasites. In addition, there will be several field trips to horse farms, dog parks, and nature centers to investigate the ecological conditions that predispose our pets to infection. The class will consist of five double periods, each beginning with a mini seminar on theory, and then followed by a laboratory exercise or a field trip.

11:090:101 section 14 index 12066
MAKING MUTANTS: UNDERSTANDING THE CONTROL OF GENE EXPRESSION

Andrew Vershon (Microbiology)

The control of gene expression is one of the fundamental processes in all organisms and unregulated gene expression is often the cause for cancer and other diseases. Understanding how gene expression is regulated will help researchers develop mechanisms to combat disease. This course will discuss current research on the yeast Saccharomyces cerevisiae that is being used to understand the process of gene regulation in eukaryotes. Students will get first-hand laboratory research experience by performing experiments to isolate and analyze mutants in a protein that regulates transcription in yeast and is involved again in higher organisms.

AN OVERVIEW OF AUTISM AND PARKINSON’S DISEASE

George Wagner (Psychology)

This seminar will first cover the childhood disorder, autism, from its genetic and neuroanatomical basis to its symptoms and therapy. Important issues and theories about the origins of autism will be presented and then critically reviewed. Additional topics will include: symptoms and epidemiology of autism, animal models of autism, and theory of mind. Next we will cover these same topics for Parkinson’s disease which manifests itself in older individuals. Finally, we will explore common features shared by autism and Parkinson’s disease emphasizing common features in their etiology.

WORLD OF GLASS

Jack Wenzel (Materials Science and Engineering)

Glass has been used for millennia and is perhaps the oldest man-made material. It is also the most modern: fiber optics made of ultra-pure glass form the basis of the internet. In this seminar we discuss the nature of glass, the evolution of technologies for its manufacture, and the properties which make it a unique and useful engineering material as well as a medium for artists. We will have a field trip to Wheaton Village, and we will conclude with a demonstration of glass melting at the Rutgers-Corning glass laboratory.

01:090:101 section 91 index 13088

01:090:101 section 92 index 13089

01:090:101 section 93 index 13090
FIGHTING THE FAT:
DO OBESITY TREATMENTS WORK?
Nicholas Bello (Animal Science)
“Globesity” is the term used by some to describe the worldwide impact of obesity. Several treatments are available for obesity, but do any of them work? In this seminar, we will explore the causes and consequences of obesity and current treatment strategies. Through hands-on experiments, we will analyze neural pathways that control food intake and body weight, and examine how obesity drugs work. We will explore obstacles to long-term treatment and efficacy standards of the FDA.

THE PSYCHOLOGY OF REASONING
Clark Chinn (Education Psychology)
People may try to think rationally and make sound decisions, yet they often fall short. For example, people are sold on the latest diet fad even though evidence indicates the diet is unsafe. Businesses cling to traditional incentive plans even when evidence shows that these plans hinder creativity and innovation. When we make mistakes evaluating evidence, we may make decisions that harm our health, well-being, and happiness. In this seminar, we will examine research in psychology and education to learn practical techniques to evaluate evidence and improve our reasoning and decision-making ability. At the same time, we will apply what we learn to analyze the reasoning of middle school students who are also learning to improve their reasoning skills. Our work will culminate in one or more presentations at the annual Aresty Undergraduate Research Symposium. Through this seminar, you will learn about reasoning and how to study it.
REVOLUTIONARY REMEDIATION: ENVIRONMENTAL REMEDIATION AT RUTGERS UNIVERSITY

Donna Fennell (Environmental Science)

New Jersey was the first industrialized state in the union and has suffered from substantial environmental contamination as a result of heavy production and usage of industrial chemicals. Fortunately, New Jersey is also where some of the earliest applications of waste treatment and environmental cleanup technologies have evolved. Indeed, some of the earliest scientific research on pollutant biodegradation was produced by scientists at Rutgers — and Rutgers faculty continue to lead vibrant research programs to repair the environment. In this seminar, we will explore the history of environmental pollution and environmental remediation in New Jersey, specifically focusing on contaminated sites along the Raritan River. We will explore technology-enabled mapping that allows a bird’s-eye view of contaminated sites in New Jersey. Students in this course will continue an important Rutgers tradition by participating in laboratory research activities and developing ideas related to environmental cleanup in the Raritan River Basin.

THE WONDER AND INTRICACY OF THE HUMAN MACHINE

Joseph Freeman (Biomedical Engineering)

The human body is an intricately engineered machine. To achieve peak operation the body employs intricately designed molecules, arranged in specific tissues, in different areas of the body. The human body has an incredible level of organization from the molecular level to the tissue level; one small change at the micron level can lead to health issues or even death. In this course, we will take a journey into the human body beginning at the molecular level and ending at the tissue level. We will discuss how molecular structure leads function; leading to a discussion of tissue structure and how molecular arrangement and alignment dictate tissue behavior. In addition, we will have a hands-on experience isolating proteins from tissue and reconstituting them into a usable biomaterial.

FROM THE SEA TO THE RARITAN: THE SPAWNING JOURNEYS OF OUR LOCAL ANADROMOUS FISHES

Olaf Jensen (Marine and Coastal Sciences)

Anadromous fishes are species which live much of their lives in the ocean but must return to fresh waters like the Raritan River to complete their life cycle. Their journey from the ocean to their freshwater spawning grounds has always been a perilous one, but human alterations to habitat — especially dams and pollution — have made it harder. Legislation, such as the Clean Water Act, and technology, such as fish ladders, have helped to reverse the declines of many species. In this course, we will focus on anadromous fish species in our back yard (the Raritan River). The spawning migrations of fish will serve as a jumping off point for a broader exploration of river ecology and restoration. Students will learn field ecology techniques through trips to the Raritan where they will participate in ongoing research on fish migrations.

PAPER-BASED ELECTRONICS AND ART

Aaron Mazzeo (Mechanical and Aerospace Engineering)

Paper is an ideal medium for folding (origami), cutting, embossing, casting, inking, and painting. Combine these attributes with electronic components on or within paper, and there are some interesting opportunities to build mechanical structures and add sensing, lighting, or color. In this hands-on seminar, students will have the opportunity to review state-of-the-art research in paper-based electronics, and then exercise creativity in an engineering lab to build their own electronic systems that they will design while keeping in mind aesthetics and artful creativity.

RESEARCHING BRAM STOKER’S DRACULA

Stephen Reinert (History)

This course explores Bram Stoker’s creation of one of the great masterpieces of English literature, on the premise that his text represents an enormous project of library research, the various layers of which can be excavated and explored — on the basis of materials as close to hand as Philadelphia, PA. The core questions we will explore — indeed, research — are as follows: (1) where did Stoker derive his notion of Dracula as a key character in the novel, and in what ways does this character reflect an informed understanding of the historic “Vlad the Impaler” from the fifteenth century? (2) what was the influence of Balkan and Slavic folklore and mythology on Stoker’s conception of vampires and their attributes? (3) why did Stoker settle on Transylvania as the major “eastern” setting of the novel, and how accurate was his description of the region’s geography? (4) what motivated Stoker to craft Dracula as he did — what were his underlying objectives and intents? — and how does this influence the modern imagination? In pursuing this journey, we will take a field trip to the Rosenbach Museum in Philadelphia to explore a treasure trove of primary evidence that will help us to answer the questions posed above.
EOF Byrne Seminars

The School of Arts and Sciences (SAS) Educational Opportunity Fund (EOF) Program provides students with quality academic support and positive learning experiences designed to help them fully in every aspect of the college experience. The Byrne Program is pleased to offer Byrne Seminars specifically designed for incoming SAS EOF students.

Truth or Fiction?
Leslin Charles (Rutgers University Libraries)

The information age has democratized the dissemination of and access to information. Social media provides a voice to all and can blur the lines of fact and fiction. Are all tweets worth the noise they generate? How can we filter through opinions and the news media to gain accurate knowledge? This course will explore the impact of the information age on our understanding of truth. Through lectures, guest speakers, videos, role play, and discussion, students will examine various channels of information and will be required to find accurate data using a wide range of information sources.

Nelson Mandela, Barack Obama, and the Transformation of Race Relations in South Africa and the United States
Edward Ramsamy (Africana Studies)

Two phenomena that were once viewed as impossible are now history. Nelson Mandela, having served 27 years in prison for protesting apartheid, steered South Africa through a relatively peaceful transition and became that country’s first democratically elected president in 1994. In November 2008, the United States experienced its own “Mandela moment” when Barack Obama was elected as the nation’s first black president. Both South Africa and the United States share a common history of legally mandated segregation. Racial exclusion and oppression were central to the national projects of both societies, as well as the creation of white identity therein. For example, given the entrenched nature of racial discrimination and segregation in South Africa, many believed that apartheid could only come to a violent end. And in the United States, the persistence of the color line led most to assume that a person of African ancestry could not assume the presidency during their lifetimes. Yet, despite these assumptions, the opposite has become a reality in both societies. The aim of the seminar is: to interrogate the socio-cultural, political, and economic factors that led the election of Nelson Mandela and Barack Obama, respectively; to examine the success and challenges faced by both leaders in overcoming the legacy of the color line in their respective societies; and to assess whether terms such as “post-apartheid” and “post-racial” are appropriate in describing present race relations in these two societies.
The Honors College at Rutgers University–New Brunswick provides students from a range of undergraduate schools with an interdisciplinary, research-focused living-learning educational experience. In partnership with the Honors College, the Byrne First-Year Seminars Program is pleased to offer seminars specifically designed for incoming Honors College scholars. Honors College Byrne Seminars are intended to introduce students to the kind of interdisciplinary study that is a cornerstone of the Honors College’s mission through small courses that build on faculty members’ research interests. In addition to these select Honors College designated seminars, Honors College scholars have the opportunity to enroll in any traditional Byrne Seminar to fulfill their first-year Byrne requirement.

THE POETRY OF ASTRONOMY

**Andrew Baker** (Physics & Astronomy) and **Carolyn Williams** (English)

Poetry inspired by the beauty of the night sky dates back more than two thousand years and is still written today. However, the progress of science means that the night sky increasingly offers knowledge as well as beauty and wonder, giving poets new subjects, concepts, and themes with which to work. This seminar will examine the poetry of astronomy — poems written on astronomical subjects, and in some cases by astronomers — from both literary and scientific perspectives, under the guidance of professors from the Departments of English and Physics & Astronomy. Each week will feature discussion of a set of astronomy-related poems with a common theme, building on an introduction to the modern understanding of relevant background material. As a capstone project, each student will conduct an interview with a research astronomer, whose subject matter will inform the student’s composition of a small set of original poems. The seminar will introduce students to the practice of research in both the humanities and the natural sciences and will have special appeal for those whose interests span both areas, although no familiarity with astronomy or writing poetry is required.

CITIZEN SCIENCE IN THE DIGITAL AGE

**Charles Keeton** (Physics and Astronomy)

The work we call science was once known as natural philosophy and practiced by all manner of educated citizens. While science became the domain of experts in the twentieth century, digital technology is creating new opportunities for interested individuals to contribute to forefront research. In this seminar, we will discuss the nature of scientific inquiry and the emerging role of “citizen science.” We will then join ongoing, global research projects in fields of your choice. Current opportunities literally range from A (astronomy) to Z (zebras).

CLIMATE CHANGE AND WATER RESOURCES

**Jim Miller** (Marine and Coastal Sciences)

What are the global geopolitical and policy implications of climate change? This seminar will introduce students to global climate change that is occurring in response to increasing levels of atmospheric greenhouse gases. After an introduction to the science of climate change, we will focus on potential future changes in water resources, both globally and in New Jersey, including the potential for increased floods and droughts, sea-level rise and coastal salt-water intrusion, and changes in groundwater reservoirs. Hands-on assignments will include learning about the sources of water in students’ hometowns, how the water is obtained and processed, and what local companies are doing to address climate change. This seminar may include a boat trip on the Raritan River and/or a field trip to a local water processing plant.
FIRST-YEAR SEMINARS
BRAHMS, CLARA AND ROBERT SCHUMANN:
LOVE, INSPIRATION, AND MUSIC IN THE
ROMANTIC ERA

Robert Aldridge (Music) and Min Kwon (Music)

This seminar will begin by focusing on the famous relationship between the well-known nineteenth-century German composer, Robert Schumann, and his wife, composer and pianist, Clara Schumann. Into their busy and successful lives walked a young Johannes Brahms, whom Robert Schumann instantly anointed, “our next musical genius.” Brahms became a close friend to both Robert and Clara. Though much has been speculated on about the relationship between Clara and Brahms, there is no question that Clara was inspirational as an artistic muse both to Brahms, as well as to her increasingly mentally unstable husband, Robert, who eventually drowned himself in the Rhine River. It’s one of the most fascinating and yet tragic love triangles in the history of music. This seminar will trace the roots of their relationships through their letters, and of course, the great music that was written for and played by each of these three iconic musical figures, who continued to inspire each other even after Robert’s untimely death. Live music of the three composers will be performed as a weekly part of the class, and a class trip to Carnegie Hall will culminate the seminar.

HOW VALUABLE ARE OUR VALUES?

Anne Ashbaugh (Philosophy)

This seminar will be an exploration of Friedrich Nietzsche’s autobiography, *Ecce Homo: How One Becomes What One Is*. The course is designed to uncover the very heart of this philosopher’s innovative critique of western values and the impact of that critique on our ability to creatively approach life. This fascinating short autobiography challenges the fundamental presuppositions of our culture and suggests new ways to create values. Together we will examine this text and uncover its power to transform our views and to open new perspectives.

WHERE ARE WE? MENTAL MAPS AND HOW WE PERCEIVE SPACE

Tisha Bender (English Writing Program)

Which island do you think is bigger? Sumatra or Great Britain? The average person on our continent would say Great Britain because it’s a more familiar country to us. But Sumatra, in fact, is more than twice the size of Great Britain! In this seminar, we will look at how we create mental images of locations and the distances between them. We will start by discussing the images we have of familiar places, such as our bedroom or our hometown, and move to the less familiar — the college campus, New York City, and beyond. On the one hand, what factors create misinformation and confusion about certain spaces, and barriers to the flow of information and knowledge about these spaces? On the other hand, what makes us engage in certain places; and how accurately do we know them? We will look at the impact of transportation, the Internet, GPS, and prevailing socioeconomic conditions, and discuss how globalization and changing economic circumstances have significantly affected global perception.

THE ROOTS AND ROUTES OF GLOBAL CITIES

Ulla Berg (Anthropology; Latino and Hispanic Caribbean Studies) and Zaire Dinzey-Flores (Sociology; Latino and Hispanic Caribbean Studies)

Since the 1950s, more and more of the world’s population live in cities. According to the UN, the world’s urban population is expected to surpass six billion by 2045. Much of the expected urban growth will take place in countries of developing regions, particularly Africa, but also Asia and Latin America. Managing urban areas, including the population flows that contribute to the growth of these cities, has become one of the most important development challenges of the 21st century. This seminar explores the relationship between urban spaces and the mobilities that constitute them. We will read from a range of sources and screen major documentary films for each case we address.

THE COINAGE OF ANCIENT ROME IN THE RUTGERS COLLECTIONS

T. Corey Brennan (Classics)

This seminar will offer an introduction to the coinage of ancient Rome, from its origins in the early 3rd century BCE to the 4th century CE. Students will develop research expertise through hands-on work in the Alexander Library with Rutgers’ Ernst Badian Collection of Roman Republican Coins (one of the best collections of its type in North America) and the University’s growing assemblage of Roman imperial coins, and make a field visit to the world-class holdings of the American Numismatic Society in New York City. Participants will gain an understanding of general patterns of development in Roman money over a 700 year period, as well as contribute their own research on ancient coins that hold particular historic, economic or artistic interest, which will then be published on Rutgers’ web-based public numismatic portal.
MELODRAMA:

THE WORLD’S FAVORITE KIND OF STORY

Matthew Buckley (English)

In the last 200 years, one form of narrative — melodrama — has come to dominate popular culture around the globe. Melodrama’s typical qualities — its primary appeal to the emotions, its spectacle and suspense, its division of “good” and “evil” characters, its comforting insistence on everything ending well — are found in virtually every “dramatic” film and television show we see. Yet we are just beginning to understand what melodrama is and what its extraordinary success means. In this semester, we will look at melodramas from the past and present, ranging from early Victorian popular plays to modern disaster films, romantic dramas, and contemporary television series like Breaking Bad and The Wire, in order to explore the history and meaning of the modern world’s favorite kind of story.

STUDENTS AT PLAY AND PROTEST:

STUDENT LIFE AT RUTGERS IN THE POST-WORLD WAR II ERA

Paul Clemens (History)

As Rutgers celebrates its 250th anniversary, we will be exploring its long and fascinating history with particular attention to student life and the place of athletics in modern universities. Students will learn from the professor’s own research and book on Rutgers post-World War II history (Rutgers Since 1945: A History of the State University of New Jersey). Students will also have an opportunity to read a chapter of Michael Moffatt’s Coming of Age in New Jersey and of Richard L. McCormick’s Raised at Rutgers: A President’s Story. The focus of the seminar will be giving students an opportunity to do research on student life in Rutgers’ past. The course will culminate with students presenting their research results to the class.

BEYOND STARVING BABIES: UNDERSTANDING WEST AFRICA THROUGH FILM

Barbara Cooper (History)

What do you think when you hear the word “Sahel”? For many of us, the image we have of this region of Africa stretching from Senegal to Sudan is of starving babies and desert sands. In this course, we will draw upon the many thoughtful documentaries and feature films focusing on West Africa to try to understand the reasons for endemic malnutrition, but also to appreciate the landscape, economy, and lifeways of the people who live in this challenging but beautiful region.

VAMPIRISM: HISTORY OF THE MODERN MYTH

E. Efe (Comparative Literature; AMESALL)

This seminar will cover the birth and growth of the vampire figure in the modern imagination, from the romantic era to our present. We will explore what went into the making of the vampire as a modern myth. In particular, we will analyze where the vampire stands in the history of blood, and what it has to do with the image of the Turk or the Oriental, with the Balkans or “the East of Europe.” We will look at the classical age of vampirism as a moment in intellectual history — one tied to the evolution of “circulation” at large, of goods, ideas, money, and again, of blood. While reading romantic poetry and tales, we will investigate the social, historical, and philosophical implications of the rise of the blood-sucking monster. These various contexts will enrich our discussions when we address vampirism in contemporary film and popular culture at the end of the semester.

THE FAULT IN OUR FICTION:

JOHN GREEN AND LITERATURE’S BIG QUESTIONS

Brad Evans (English)

John Green’s sixth novel, The Fault in Our Stars (2012), a young-adult bestseller and particular favorite of Green’s online fans, became a breakout success last summer after being turned into a major motion picture. Through the heartbreaking love story of teenage cancer patients, the novel makes a strong case for the exceptional vibrancy of the young adult literary scene today. There is no doubt that Green’s many fans take his six young adult novels very seriously, but can you read them seriously as literature? How do Green’s novels fare when approached as literary texts and read through the lens of contemporary literary theory? Conversely, how does the field of literary study look when viewed through the lens of Green’s formative works of contemporary young adult fiction? This seminar will take up these questions while reading The Fault in Our Stars alongside some other works of classic and contemporary fiction, including Jane Austen’s Pride and Prejudice (1813), (and the sensational YouTube adaptation The Lizzie Bennet Diaries), and Green’s earlier novel Looking for Alaska (2005), itself soon to be released as a motion picture directed by Sarah Polley. We will screen both The Fault in Our Stars and another film by Polley, Stories We Tell (2012); and, if it has been released, we will head to the local multiplex to see the film adaptation of Looking for Alaska.

THE WORLD TRADE CENTER: THEN AND NOW

Angus Kress Gillespie (American Studies)

Today the twin towers of New York City’s World Trade Center stand only in our memory, an image that calls to mind sorrow and loss. But during the years that they straddled the skyline, the towers meant many things to many people. We will examine what has happened at the site in ensuing years in terms of real estate developers wanting office space, grieving families wanting a memorial, and all of America looking to rebuild to honor the dead.
ORIGIN OF RELIGION IN HUMAN HISTORY
Tao Jiang (Religion) and Emma Wasserman (Religion)

This seminar will examine the role various religions, such as Confucianism, Hinduism, Christianity, and Islam, have played in the origination of political order in civilizations around the world. We will use Francis Fukuyama’s recent book, *The Origins of Political Order*, to help us frame the discussion. This book critically examines the role religions have played in shaping the political cultures of ancient civilizations and their modern implications. We will study notions like tribalism, patronalism, bureaucracy, rule of law, and the relationship between church and state, contextualized in their historical background. This will help us to better appreciate the contingency and vulnerability of a variety of modern political norms.

ART AND SOCIETY IN ANOTHER AGE OF CRISIS
John Kenfield (Art History)

The seventh and eighth centuries CE were an age of crisis for the Late Roman/Early Byzantine Empire, a period dominated by the rise of Islam and the threat it posed to engulf Christian Europe (both east and west). These political and religious events were accompanied by near financial collapse. As the Arab tide swept away most of its eastern and North African provinces, it is estimated that the revenues of the Roman state fell by 75% in the seventh century, and to demonstrate further what was interpreted as divine displeasure, these man-made events were accompanied by cataclysmic geophysical activity in the eastern Mediterranean. The parallels with our own time are striking. This course will examine through readings and discussion the ways in which the imperial government in Constantinople dealt with those problems, their reflection in the visual art of the period, and attempted solutions.

THE BOOK: DIGITAL, EATABLE, AND AS ART
Megan Lotts (Rutgers University Libraries)

What is a book? From banned books to decorative books, this course will explore the cultural history of the book and how the physical format of books has changed over time. Students in this course will work hands-on with rare books and one of a kind materials from the New Jersey Artists’ Books and Book Arts Collection housed in the Rutgers University Libraries Special Collections. This course will include guest lectures by Book Artists, Curators, and Librarians. Students will take trips to the Brodsky Center, MoMA, and more. Topics explored throughout this course will include: Artist Books, Graphic Novels, E-Books, and the world of self-publishing.

WORLD WAR II IN ORAL HISTORY AND FILM
Norman Markowitz (History)

This seminar will explore WWII from the viewpoints of those who lived the experience. Through portrayals of the war in documentaries, films, and fiction, we will look at history as a process, a force by which perceptions of the past are influenced and transformed by changes over time as well as our present moment. From Europe to America to New Jersey, we will explore the history of this great war along with its lasting effects. The seminar includes a visit to the Oral History of Rutgers Graduates in WWII collection at the Alexander Library.

WHERE AND WHAT IS THE CARIBBEAN?
Yolanda Martinez-San Miguel (Latino and Hispanic Caribbean Studies)

Did you know that the Caribbean has Indian and Chinese communities that have shaped contemporary cultural identities in the region? How are border studies applicable to Caribbean migration? Why is the Caribbean considered an exotic tourist destination, yet it is still deemed as one of the most conservative regions in terms of gender roles and definitions of sexual identity? Taking advantage of Critical Caribbean Studies at Rutgers, this Byrne Seminar will answer these and other questions, using the interdisciplinary and cutting-edge research produced by Rutgers faculty, composed of cultural critics, historians, anthropologists and geographers. Faculty visits, short film screenings, music and Caribbean food will be showcased as part of this seminar.

THE “PROBLEM OF EVIL” IN PHILOSOPHY, LITERATURE, AND FILM
Trip McCrossin (Philosophy)

What do we mean when we say of someone that they have “the patience of Job,” when we complain that “bad things happen to good people, and good things to bad,” when we admit that we are somehow consoled in our distress by the assurance that “things always work out for the best?” What such sayings, complaints, and consolations share, among other things, is that they reflect together, arguably, the ongoing legacy of the problem known as “the problem of evil.” In this seminar, we will work together to understand a basic divide that has animated modern responses to the problem, as both a theological and secular one, and to trace the legacy of this divide in certain exemplary contributions to twentieth-century literature and film.

UNMAPPING AMERICA THROUGH AMERICAN INDIAN NARRATIVES
Angela Mullis (Director, Byrne Seminars)

Since the beginning of the “Native American Renaissance” in the 1960s, American Indian writers have been addressing the continued effects of Indian Removal. Literary representations of displacement often portray alienation, resistance, survival, mixed identity, and individual and communal isolationism. These concepts are essential to understanding the notion of place and identity that are interlinked for many American Indians. In this course, we will complicate our understanding of “home” and what this means for indigenous peoples throughout the United States. We will explore diverse tribal and national narratives to trace the ways in which tribal affiliation shapes the representation of cultural and national identities. Seminar includes a field trip to the National Museum of the American Indian in New York.
LOOKING EAST: A DIFFERENT WAY OF LEARNING DANCE, LANGUAGE, TRADITIONAL ARTS AND CULTURES THROUGH MOVEMENT

Paul Ocampo (Dance) and Chien-Ying Wang (Dance)

This course will investigate various dances, traditional arts and culture of Taiwan, the Philippines, and neighboring countries. Through the language of dance, students will learn traditional arts and cultures using practices and modality that are fun, interactive and informative. This seminar is designed for students who want to expand their understanding of dance as an emblem of cultural identity and an expression of social order. Along with the practice of dance, we will experience how to prepare traditional foods associated with respective festivities. The food serves as a conduit for a holistic experience to deeper comprehension of Asian cultural arts and heritage. This seminar will include a field trip to New York City.

PAULO COELHO’S THE ALCHEMIST: A CONTEMPORARY QUEST OF SELF-FULFILLMENT AND JOY

Damaris Otero-Torres (Spanish and Portuguese)

Paulo Coelho’s The Alchemist has been hailed as a modern classic. Originally published in Portuguese in 1988, this novel has since been translated into 67 languages, becoming one of the best-selling books in history. The story narrates the adventures of an Andalusian shepherd named Santiago, as he travels through the African desert in the pursuit of his dream: to see the pyramids in Egypt. The trope of the journey propels the main character into a deep personal transformation as he discovers the intricacies between ancient esoteric teachings and daily living. In this seminar, we will discuss the currency of the spiritual principles addressed by this allegorical quest for self-fulfillment and joy. We will ponder these important questions: What does the ancient metaphor of walking “through the shadows of the valley of death” look like in our contemporary world? Is there a need to build a personal communion with the divine or is it merely an editorial strategy to sell inspirational books? Can the principles and practices of ancient spirituality provide new insights to transmute fear, isolation, and loneliness into creative expression and joy? We will engage in in-depth conversations about the controversial power of spirituality to transform lives.

PORTRAITURE

Benjamin Paul (Art History)

Portraiture reflects how the concept of individuality has changed throughout history. While in the fifteenth century portraits primarily focused on the social status of the represented person, in the following centuries, individuality and personality became more important. Fast forward to the twentieth century, however, and portraiture began to question these conventional concepts of individuality and subjectivity. This seminar will investigate the portraiture from the “invention” of the individual in fifteenth-century Italy to its “deconstruction” in the twentieth century. We will discuss these developments in the front of originals in the collections of New York City museums, including the Metropolitan Museum and the Museum of Modern Art.

FIRST NIGHTS OF MUSICAL PERFORMANCE

Nancy Rao (Music)

Making music is exciting for everyone involved, especially the first performance of a work. This seminar will go behind the scenes and explore the making and reception of the first performance of several works — Handel’s Messiah, Beethoven’s Ninth Symphony, Stravinsky’s Rite of Spring — that have stood the test of time and come accompanied by a great deal of historical and critical baggage. Composers create their work for people. Aware of the particular audience’s taste, values and behavior, they know the expectations, but are not limited by them. How do those involved — the composers and performers — expect it to sound? Does it sound that way on the first performance? Why and why not? What experience does the audience bring to the first performance? and what lasting influences do these receptions have?

ACTS OF THE IMAGINATION: EXPLORING CREATIVITY THROUGH IMPROVISATION AND PLAY

Julia Ritter (Dance)

This seminar will explore methods and techniques of improvisation and play as applied to the creation of dance theater. Students who take this seminar should be open to immersing their playful selves in creative games, experiments, and improvisations that use the body and the voice. This course is for anyone who loves to move and challenge themselves to solve problems with creative solutions. We will explore the movement and theatrical potential of the body using traditional and experimental techniques of dance improvisation. The seminar includes a field trip to New York City for a performance.
URBAN ADVENTURE:  
COMMUNITY NOT ESCAPISM

Michael Rockland  (American Studies)

Adventure is often associated with escaping community, leaving civilization, and “entering nature,” in part because of the common view that human beings are separate from nature. In this course we will assume the contrary, that the environment humans have built — including cities, highways, and even sewers — is a part of nature and also a place of adventure and wonder. Reading select chapters from books that explore the human built environment (including Looking for America on the New Jersey Turnpike and The George Washington Bridge: Poetry in Steel), we will plan a field trip, perhaps walking the length of the island of Manhattan and crossing the George Washington Bridge on foot, or hiking along the Delaware and Raritan Canal. Beyond following the professor’s research agenda, the goal here is to have fun, to engage your imagination in relation to your immediate surroundings and environment, and to see the familiar world differently.

TRANSFORMING SPORT IDENTITIES: HOW DOES SPORT AND THE BIG 10 TRANSFORM RUTGERS, BODIES, RESEARCH, AND THE ACADEMY?

Mark Schuster  (Senior Dean of Students)

Birrell and McDonald define “articulation in sport” as a barometer of our culture and who we are as social beings. In this seminar, we will explore many sports-related questions including: Is the Big 10 reshaping Rutgers or is Rutgers transforming the Big 10? How will this impact Division I and NCAA sports? Will Rutgers change the culture of this predominantly white, Midwest conference that is now part of one of the most diverse institutions in the world with very large neighboring cities? Did the academics that traditionally hated sports suddenly “drink the Kool-Aid”? What are the academic benefits of the CIC (Committee on Institutional Cooperation)? How do television dollars, social media and fans drive elite and professional sports, the Olympics, and our academic lives? Sport MEGATexts such as violence, injury, bullying, intimidation, sexual assault, steroid and alcohol abuse, playing through pain, and media coverage will be critically examined. Ethical complacency and scandals in intercollegiate, professional, and Olympic competition will be explored and exposed. Using the new field of Critical Sport Studies, the course will deconstruct the financial, cultural, and personal costs to the athlete, society and academia. Ultimately, we will discuss how increasing social acceptance of transforming bodies, identities, sexuality and who we chose to love changes the playing field and the academy.

THE STORY OF MANDARIN, CHINA’S NATIONAL LANGUAGE

Richard V. Simmons  (Chinese)

Mandarin is the standard language of China. But what is Mandarin and where did it come from? Many assume that Mandarin is the language of Beijing and that Beijing has served as the standard language for a long time. In fact, Beijing is not the origin of today’s standard written language, and the city’s dialect was not the most common spoken language in imperial China, even when Beijing was the capital. In this seminar we will explore the history of Mandarin — where it came from, how it is changing, and how it is related to the many other forms of written and spoken Chinese, including Classical Chinese and Chinese dialects. No knowledge of Mandarin is needed to take this seminar, only the desire to know more about this fascinating language.

WHO NEEDS MUSIC?!

George Stauffer  (Dean, Mason Gross School of the Arts; Music)

Is music an essential part of life? Is it really necessary? History, both ancient and modern, suggests that humans cannot live without it, and that it has been with us since the earliest days of our existence. This seminar will explore the role of music in modern life — from ritual to rap, from ballet to Broadway, from concert to commercial, from movie to muzak — to weigh just how important it is, and why humans are affected by it. We will explore a wide range of music, including works by Lady Gaga, the Beatles, John Philip Sousa, Bach, Jay-Z, Tchaikovsky, Rodgers and Hammerstein, and others. This seminar includes field trips and the text will be Daniel J. Levitin’s provocative This is Your Brain on Music: The Science of a Human Obsession.
MENTAL HEALTH TREATMENT IN TALK AND INTERACTION
Beth Angell (School of Social Work) and Galina Bolden (Communication)

Serious mental health disorders, such as schizophrenia and bipolar disorder, are frequently treated in community psychiatric settings, involving multidisciplinary teams composed of psychiatrists, psychologists, nurses, and social workers. This seminar will introduce students to the interdisciplinary study of mental health through the lens of talk and interaction, a key resource through which treatment relationships are created and maintained. We will analyze field audio-recordings of interactions between mental health professionals and clients and examine questions such as: What are the elements of a good treatment relationship? How are these relationships enacted through social interaction? How are treatment relationships used as resources to help clients gain the most from treatment? How are treatment decisions negotiated?

SECRETS AND SECRECY IN REVOLUTIONARY AND CONTEMPORARY ERAS
Jack Bratich (Journalism & Media Studies) and Craig Scott (Communication)

In revolutionary and contemporary periods, we repeatedly find the presence of secrecy. That secrecy exists in our most trusted institutions and among the closest of friends; it is used to protect people and cultures from those who might otherwise bring them harm, but it is also employed by those who might carry out unspeakable acts without being held accountable. Secrets may generally be disliked by society, but they can also represent some of our most cherished possessions. This seminar will introduce students to some of the many manifestations of secrets and secrecy in our society. This will not only include public secrets and secret publics/societies, but also proprietary secrets and trade secrets, secret juries and secret police, secret Santas and secret admirers, and much more. There is little doubt that we live in an era where demands for transparency and openness come face to face with the need for secret agents and top secret classified actions. Only by helping students to better understand secrets and secrecy as important (as well as problematic and empowering) forms of communication, may we start to address the challenges that secrecy presents us in our daily lives.

THE HUNGER FRAMES
Peggy Policastro (Dining Services) and Gretchen Chapman (Psychology)

Can the framing of a situation affect what you eat? What types of environments cue you to eat healthy foods, and what contextual cues lure you into overeating or indulging in junk food? This course explores recent research that shows how redesigning the dining environment can promote healthier eating. We will meet each week at a different dining setting on campus (e.g., dining commons, take-out line, food truck, Henry’s Diner) to discuss recent studies and observe our dining environments. Combining Chapman’s expertise on the psychology of decision making and Policastro’s expertise in behavioral nutrition, this course highlights new research on how principles from behavioral economics and social psychology can be harnessed to promote healthy eating behavior. Students must be on a meal plan and willing to use seven meal swipes for this course.

SUCCESS IN SCHOOLS: WHY BEING SMART IS NOT ALWAYS ENOUGH!
Ryan Kettler (Psychology) and Timothy Cleary (Psychology)

Have you ever wondered why some students struggle in school and what can be done to help these individuals? In this seminar, we provide examples of common barriers to successful learning in schools (learning disabilities, anxiety, lack of motivation, attention disorders), and describe approaches for identifying and solving these school-based problems. Through discussion and class activities, students will be introduced to the field of school psychology and the specific roles and responsibilities of professionals (school psychologists), whose primary job is to work with teachers, families, and children to optimize learning and well-being. The content of the course will provide practical information that will help students not only learn about hot-topic themes in education, but also consider the substantial role that psychology can have in school settings.
MAMA MIA! CONCEPTIONS AND CONSTRUCTIONS OF MOTHERHOOD

Laura Curran (School of Social Work) and Judith McCoyd (School of Social Work)

Mama, Ma, Mom, Mommy, Mother...few words can evoke such myriad emotions ranging from affection to contempt. Mothers can drive us crazy, yet we can’t live (literally) without them. In this seminar we will examine how mothers are conceived, or how women physically, psychologically, and socially transform into mothers. Our class will also explore how motherhood is constructed, meaning how mothers view themselves and how they are viewed by society. We will consider how societal expectations of mothers and the experience of being a mother has changed dramatically over time and how mothers’ experiences vary according to larger social and economic circumstances. We will learn about moms who face difficult experiences such as postpartum depression, the birth of a medically fragile child, and even the death of a baby. Finally, our class will look at the challenges mothers face in the workplace and in financially supporting their families.

1893 AROUND THE WORLD: THE WOMAN’S LIBRARY AT CHICAGO WORLD FAIR

Marija Dalbello (Library and Information Science)

This seminar focuses on the Chicago World Fair that celebrated the fourth centenary of Christopher Columbus’ arrival in the New World. The fair had over 27 million visitors and prompted multiple factual and interpretive accounts, including a murder mystery. The world exposition was also a setting for the expression of female identity. The Woman’s Building, for example, was the site of the Woman’s Congress and one of several displays of books at the fair, including the international women’s writings, representing twenty-three countries. Students will participate in weekly discoveries about the fair and the world in 1893, focusing in particular on the books that symbolized the “discovery” of women at the fair and celebrated the “discovery” of America. The course will run parallel to the production of an edited book and a digital humanities project.
CLIMATE CHANGE AND ENERGY SUSTAINABILITY

Frank Felder (Energy, Economic, and Environmental Policy)

This seminar will introduce first-year students to the major issues surrounding climate change and energy sustainability. It will describe the various ways energy is produced and consumed, the environmental impacts of greenhouse gas emissions and other environmental problems, the intersection of energy and international security, and survey various policy responses at the state, federal and international levels. Interactive discussions and team exercises will be used throughout and combined with two on-campus field trips. The field trips will be to the two Rutgers solar installations and distributed energy facility. Students will meet with Rutgers facility’s personnel who operate these facilities to learn about how these energy sources contribute to meeting the energy needs of Rutgers University as well as providing efficient and cleaner energy solutions. In addition, students will visit the Department of Marine and Coastal Sciences to learn about its efforts to assess off-shore wind resources in support of New Jersey’s efforts to develop wind-based generation of electricity.

TAMING MY WILD TONGUE: LANGUAGE AS REVOLUTIONARY ACTION

Nydia Flores (Education Psychology) and Ebelia Hernandez (Education Psychology)

Rudyard Kipling once said “Words are, of course, the most powerful drug used by mankind.” To this end, this seminar will explore and address the use of language in developing our identities and cultural expression. Several topics will be discussed, including the pros and cons of “coming out bilingual,” ethnic labels, slang and idiomatic expressions, language and diaspora, an examination of language change and the digital divide, language policies and practices, and language and cultural diversity.

THE SECRETS (AND BIG BUSINESS) OF SEARCH ENGINES

Melissa Gasparotto (Rutgers University Libraries)

“Googling” has become synonymous with searching, and those who google are often presented with thousands to millions of results. Yet research shows that people almost never go beyond the first page or two. Appearing on the first page of search engine results has become big business in the 21st century, yet users are often unaware that what they see when they search (and what they do not see) is influenced by factors like money. What makes some results appear higher in the ranking? How do companies stay on top of search engines’ trade secret algorithms to alter the way their own websites are found? More importantly, what are searchers not seeing? This seminar explores the factors and stakeholders of web searching. Students will learn to be savvy finders and consumers of information, with a clearer sense of who is watching them while they search, and the motivations and practices of the companies that provide the supposedly free services on which we have become so dependent.

R.U. HAPPY?

Briavel Holcomb (Bloustein School of Planning and Public Policy)

What makes you happy? What makes other people happy? In this seminar we will explore the idea of happiness from various perspectives, including ancient and modern philosophers, the new field of positive psychology, the geography and economics of happiness, and the use of well-being as a measure of success in public policy. We will explore expressions of happiness in art, music, literature and poetry, and consider how cultural and generational differences affect how happiness is expressed. A communal meal will round out our seminar experience.

SOUND MIND, SOUND BODY: THE LAST 50 YEARS OF INTERCOLLEGIATE ATHLETICS

Carl Kirschner (Special Counsel, Integrative Academic Programs)

The world of intercollegiate athletics has changed dramatically from the days of regional competitions without media coverage to the present national stage with television and internet coverage. What were the factors underlying the change? What role have the universities played? What role has the National Collegiate Athletic Association (NCAA) played? This seminar will review the history of intercollegiate athletics with a special emphasis on the last ten years. Significant case studies of positive and negative behaviors by players, coaches, and universities and the reactions (sanctions) by the NCAA will be studied.

MADAME PRESIDENT: FEMALE NATIONAL LEADERS WORLDWIDE

Mona Krook (Political Science)

This seminar will introduce students to trends in women’s leadership worldwide, focusing on the growing numbers of female presidents and prime ministers. Through readings, images, and films, we will analyze their routes to power and their performance in office. The seminar will cover both historical and contemporary examples (from the 1960s through today), as well as cases from different world regions (Europe, Latin America, and Africa). The final session will discuss the prospects for electing a woman as president of the United States.

LET THE GAMES BEGIN: THE SOCIO-ECONOMIC EFFECTS OF MEGA-EVENTS IN SPORTS

Michael Lahr (Planning and Public Policy)

Why do countries and cities compete so fiercely to host major sports competitions? Do they benefit substantially from such events from an economic perspective? Or are the events more a matter of cultural pride or something else? How do experts measure the extent of the economic benefits countries and cities realize? In this seminar, students will reflect on these questions as we examine recent sporting events as case studies, including the recent 2012 Summer Olympics in London, the 2013 FIFA games, the 2014 World Cup event, the Sochi 2014 Winter Olympics, as well as other major sports events.
CLIMATE CHANGE: IDENTIFYING SOLUTIONS THROUGH SUPPLY CHAIN ARCHAEOLOGY

Kevin Lyons (Supply Chain Management and Marketing Science)

Supply chain management and archeology are two academic disciplines that rarely cross paths. Archaeology is the scientific study of past cultures and the way people lived based on the things they left behind or discarded as post-consumer waste. Supply chain management involves the movement of man-made materials as they flow from their source to end-users (customers). In this course we will explore and learn how to combine these two disciplines to research and discover opportunities to address climate change impacts by studying product life/death-cycles, consumption, and our discards. We will conduct in-class and virtual archaeological digs at waste and dumpsites globally to look for climate impacts while identifying new eco-product design solutions.

A WOMAN FOR PRESIDENT OF THE UNITED STATES?

Ruth Mandel (Political Science)

In 2016, for the first time, a woman may head a major political party’s ticket for the office of President of the United States. This historic breakthrough will intensify the interest in the national elections, with many people discussing gender whether or not they regard it as a legitimate or relevant campaign issue. Seminar topics will include: (1) a brief history of female presidential and vice presidential candidates, including Shirley Chisholm’s historic 1972 campaign and the candidacies of Geraldine Ferraro (1984) and Sarah Palin (2008); (2) public attitudes about electing a woman to the White House; (3) media coverage of female candidates; and (4) women’s changing political roles and status as candidates and voters over the last four decades. A focal point of the seminar will be the life and career of Hillary Rodham Clinton, the sole woman so far with a realistic chance to make the presidential breakthrough, the first woman to be taken seriously as a credible major party nominee. We will look back at Clinton’s 2008 presidential campaign and will devote special attention to her 2016 candidacy. During the seminar, we will meet various people with expert knowledge about women and politics and several with experience in the political arena (campaign strategists and workers, party activists, women leaders, journalists, etc.). With luck, we will take one or more field trips to special events.

WHAT DO WE KNOW AND HOW DO WE KNOW IT: A SEMINAR IN PUBLIC AND PRIVATE KNOWLEDGE

Claire McInerney (Acting Dean, School of Communication and Information; Library and Information Science)

It’s often said that in many organizations “the left hand doesn’t know what the right hand is doing,” and, no doubt, it’s true that knowledge can be stalled from flowing freely in a business, in government, and even in a university. Sometimes what the public knows is limited for good reasons, and at other times, knowledge needs to be transparent for the public good. Recent news reports demonstrate that there are many controversies surrounding how much knowledge should be private and how much should be public. Social media light up when reports from Wikileaks appear or revelations are made by military officials or government employees. The seminar will focus on research on knowledge sharing and knowledge “stickiness,” that is, knowledge that is blocked in organization and why workers choose to divulge what they know or keep it hidden. Case studies centering on global interest in private and public information and knowledge coming from U.S. sources will be points of study. A round table with experts will be included as part of the course.
THE MEANING OF VIDEOGAMING
Paul McLean (Sociology)

Playing video games is a way to have fun, hang out with friends, and spend your time. But how does videogaming both shape and reflect our culture and our way of living as a society? In this seminar, we will learn about the meaning of videogaming from a sociologist's perspective, as an “idioculture.” Videogaming is fundamentally a social activity: in gameplay we learn to follow rules, but also how and when we are supposed to bend the rules. We learn about honor, cheating, and honorable forms of cheating. We make pretend claims to status, and we participate with the tools of the game — heroes, villains, music, competition — to develop a sense of ourselves. In this course we will study the nature of play, play video games, and critically observe other game players in order to understand this idioculture both theoretically and practically.

THE ECOSYSTEM OF ENTREPRENEURSHIP AND INNOVATION AT RUTGERS
Gary Minkoff (Management and Global Business) and Jeffery Robinson (Management and Global Business)

In this seminar, student participants will be introduced to the entrepreneurs, inventors, supporters, and investors that make new businesses and new ventures happen in New Jersey. We call this the local ecosystem of entrepreneurship and innovation and Rutgers is a central player in this process of new venture creation. We will learn about entrepreneurship from alumni, faculty, and guest speakers from around New Jersey and participants will be able to develop and pitch their own ideas to a panel of entrepreneurial students and alumni.

LANGUAGE AND MIND
Julien Musolino (Psychology)

Language is a quintessentially human trait: all normal people speak, no non-human animal does. Artificially intelligent machines can now defeat the best minds at chess, but in the domain of language, they do not even come close to what a five-year-old can do. What kind of “mental program” underlies our ability to talk? Do creatures who lack words, such as human infants and non-human animals, nevertheless have “concepts”? Can they “think”? Using state-of-the-art evidence from a range of fields, including linguistics, psychology, and philosophy, this seminar will explore the gift of language and its relationship to the mind.

WHY IS IT SO HARD TO “JUST SAY NO”?: TOPICS IN ADDICTION
Robert Pandina (Director, Center of Alcohol Studies) and Laura Fenster-Rothschild (Center of Alcohol Studies)

Team-taught by faculty affiliated with the Rutgers Center of Alcohol Studies (CAS), this seminar explores issues surrounding addictive behaviors, especially as they affect contemporary college students. Through discussion, we will develop a broad context for understanding both addiction and efforts to address this personal, social, and public health problem. The course highlights research in the addictions and the tools needed to search and evaluate both scientific and mass-market information, and includes a tour of the CAS research laboratories and library.

ECO-CINEMA: NATURE AND ENVIRONMENT IN FILM
Alexander Pichugin (German and Information Science)

This seminar is open to any student interested in film studies, nature/culture relationship, environmentalism and environmental humanities. It will engage students with the connections between ecology and cinema. The seminar begins with an exploration of the theoretical principles of the ecological approach and the history of ecocriticism, including ecocriticism in film. The focus of the second (main) part of the seminar will be on the application of ecocritical thinking to the analysis of feature and documentary films related to nature and ecology. The feature films include James Cameron’s Avatar, the documentaries are David Attenborough’s Life Series, Al Gore’s Inconvenient Truth and Werner Herzog’s Grizzly Man. The goal of the course is to approach the filmic representation of the relationship between humans and our natural environment in meaningful and creative ways.

FUNDRAISING FOR INTERNATIONAL CAUSES: EFFECTIVELY UTILIZING CROWD-SOURCING AND OTHER SOCIAL MEDIA FOR GLOBAL CAUSES
Ronald Quincy (School of Social Work)

In this seminar, we will examine the challenges that nonprofit organizations encounter to amass the assets and resources needed to manage their charitable and public services. Traditional and nontraditional fundraising methods will be discussed, along with marketing principles. You will learn the art and science of “asking” for money, inside tips on successful grantsmanship; and how to write winning funding proposals. The seminar will focus on “how to land the big fish.” Readings and discussions will be drawn from newsletters, journals, writings of top fundraisers, and “best practices” scholarship in this field of study. Following the course, students will be able to write grant proposals, and enhance their techniques on how to “ask” for funding.

AND THEY’RE OFF! GALLOPING TOWARD THE 2016 PRESIDENTIAL NOMINATION
David Redlawsk (Political Science)

It’s 2016, and that means another U.S. Presidential election. With Barack Obama completing his second (and final term), the campaign to replace him started in earnest last year, as Democrats and Republicans lined up for the Iowa Caucuses and the start of the primary season. This class will chart the race; following candidates and learning about the craziness that is our presidential nomination system. No one would have willingly invented the system of primaries and caucuses that run over many months and clearly exhaust many contenders. But we have it, and a better understanding of how it works and what happens to candidates will help us get a grip on why some people become president, while many others fail.
QUEER LITERATURE BEFORE GAY LIBERATION
Kyla Schuller (Women’s and Gender Studies)
What did queer lives look like before gay rights burst onto the scene in the late 1960s? How can we understand the different forms that same-sex and queer identities and relationships took before the advent of the modern categories of homosexual, heterosexual, gay, lesbian, and transgender over the course of the twentieth century? We will explore the queer past by turning to literature about same-sex and queer desires written in the nineteenth century and the first half of the twentieth. Students will explore queer cultural history, as well as learn just how queer the culture of the United States has long been.

VISUALIZING DATA TO TELL A STORY
Anselm Spoerri (Communication)
Students will learn about the principles and techniques necessary to tell a story using data visualization tools. They will analyze examples of successful visual data stories and learn to create effective visualizations using tools such as Google Motion Charts and Tableau. Students will work in teams to collect and prepare a rich data set that can be visualized as an interactive and engaging data story.

LANGUAGE GAMES AND TALKING HEADS
Karin Stromswold (Psychology) and Kristen Syrett (Linguistics)
Despite the diversity among the thousands of languages spoken in the world, there are striking similarities in the “tricks” that people and languages use. This seminar will explore what makes human language so special, the language games we play in communicating with each other, and what happens when communication goes wrong. Questions we will address include: What makes human language distinct from animal communication? How can brain damage and disorders affect language? Why can speakers get two very different interpretations out of the exact same string of words? Why do we end up singing song lyrics that are creative but absurd? Are speech errors really Freudian? And what kinds of strategies do we use when we wish to convey — or avoid conveying — information? We will also explore how technology relates to language — why even the smartest computer programs still mangle the simplest sentences, how technology has infiltrated the way we communicate, and how advances in technology allow us to investigate how children and adults acquire, process, and represent language.
INFORMATION INEQUALITY
Lily Todorinova (Rutgers University Libraries)
In this course, we will develop an understanding of information as a commodity, with a richly contested value for both individuals and societies. From the level of societies, information is politically and economically charged. The ubiquity of information technology in the West makes it easy to overlook the continuation of vast areas of information poverty in the world. The global digital divide, which pertains to technology and information literacy, continues to threaten human rights, development goals, and political stability. Information also has a private and personal value. We will bring in case studies of how governments and corporations quantify information and what this means about our own information “worth.” In addition to class discussions, we will develop information literacy skills and use scholarly resources available through the Rutgers University Library to explore these topics. The course will culminate in a research proposal on an issue related to information inequality and its effects on local and global communities.

PETER DRUCKER ON BUSINESS, MARKETING, AND SOCIETY
Can Uslay (Supply Chain Management and Marketing Science) and Shen Yeniyurt (Supply Chain Management and Marketing Science)
Peter Drucker is widely recognized as the best business thinker of the 20th century. This seminar is based upon the original writings of Peter F. Drucker and augmented with recent research from the world’s leading management and marketing thinkers. It is designed to expose students to marketing’s power to transform business and community through Drucker’s insights. The seminar will utilize cases, videos, and lectures as appropriate.

ADDITION
Mark West (Psychology)
Do people become addicted to technology? Although some students have direct or indirect experience with substance abuse, all will have experienced the lure of the iPhone, TV, web surfing, texting or playing video games. This seminar will encourage students to describe the behaviors they observe in themselves or others. We will explore the cognitive processes involved in starting, repeating or perseverating in technology related behaviors. The goal will be to discuss whether these behaviors are similar to or different from DSM-V criteria for addictive behaviors such as substance use, binge eating disorder, or gambling. We will come to understand the scientific knowledge created by clinical and preclinical researchers on addictions, including the neural underpinnings of behavioral and cognitive processes of the drug user. Ultimately, students will learn to identify warning signs in themselves or others when succumbing to self-defeating behaviors related to technology.

AMERICAN COLLEGE EXPERIENCES FOR INTERNATIONAL STUDENTS
Dake Zhang (Education Psychology)
In what ways is the college experience for international students the same as American students? In what ways is the college experience in the United States different from the experience if you studied in your home country? What do you expect from your college experience here and how do you look at the challenges that you will face? In this course, we will share our personal experiences and use statistic research results to recognize how culture, language, family, and educational experiences prior to college can affect our college experience, as well as how our college experience may influence our academic achievement, social wellbeing, and long-term career development.
CAN EXERCISE CHANGE YOUR BRAIN?

Brandon Alderman (Exercise Science and Sports Studies)

Almost everyone knows that exercise is good for them, yet most people are inactive. A more effective approach to get people off the couch and moving might be to inform them of the mental and cognitive health benefits of exercise. In this seminar, we will explore the underlying neurobiological mechanisms that help to explain the beneficial effects of exercise on brain health, covering topics from depression to ADD to Alzheimer’s. We will also explore the paradoxical effect of physical inactivity despite scientific claims of a “feel better” phenomenon following exercise.

GENES, DRUGS, AND MODELS: SOMETHING OLD, SOMETHING NEW, AND A SYSTEMS VIEW

Ioannis Androulakis (Biomedical Engineering)

The good news is that we live longer. The bad news is that we live longer! The longer we live, the sicker we may get with diseases, some of which never existed before. At the same time, life and physical sciences are getting much better at understanding how we (humans) function, how/why we get sick, and how/why we can be treated. However, the more we learn, the more we realize there is so much we do not know. We begin to appreciate that getting sick is not as simple as one may have thought in the past and that many things, some of them somewhat vague, such as “stress,” have the ability to make us sick, or sicker. Researchers have argued that the only way we can move our understanding forward is if we start looking “at the forest” and not just “the tree.” In this seminar, students will be introduced to disciplines such as systems biology, systems medicine, and systems pharmacology, which argue that we have to consider events at the “human/host” level and look at a patient from a holistic point of view, and not only at the level of specific molecule or gene. What this requires is that we bring together biology, physiology, engineering, and computational sciences in ways that we still do not know, so that we can put together all the sometimes confusing information we obtain when we study diseases, patients, and drugs and look at the entire “SYSTEM.” We will draw from our research experience and interactions with physicians, pharmacologists and biomedical scientists and engineers, to provide an overview of what might be the “next” frontier in medicine.

SPACE DEBRIS: WHAT CAN WE LEARN FROM GRAVITY?

Xiaoli Bai (Mechanical and Aerospace Engineering)

Since the launch of the first satellite (Sputnik 1) in 1957, humans have created a lot of objects in orbit around Earth. Currently, the US Air Force is tracking about 23,000 Earth objects; unfortunately, among them only 5% are operational spacecraft while the other 95% are non-operational space debris. The first part of this seminar will look at key scenes in the movie Gravity, where space debris almost kills Sandra Bullock’s character, and we will determine what parts of the movie are scientifically true and which parts are just fiction. In the second part of the seminar, we will explore where space debris comes from and the current US and international mitigation guidelines. We will conclude the seminar thinking through multiple approaches to address this problem.

THE HUMAN MICROBIOME: HOW OUR FRIENDS THE MICROORGANISMS TAKE CARE OF OUR HEALTH AND WELLBEING

Tamar Barkay (Biochemistry and Microbiology)

One of the most exciting discoveries in the last few years is the enormous benefit of the microorganisms that live in and inside the human body, collectively called the “human microbiome,” to our health and wellbeing. Ten microbial cells live on and within us for each cell that makes up our body! New findings showing how the activities of these microorganisms affect our diet, immune system, obesity rates, cancer and heart health, and even mental condition, are published daily, often attracting the attention of major media outlets. This seminar will introduce students to the concepts and technologies of the “human microbiome” and will include a visit to a DNA sequencing facility. Class discussions will focus on current findings that connect human health to our interaction with our microbiome.

LUNAR STRUCTURES

Haym Benaroya (Mechanical and Aerospace Engineering)

Lunar Structures presents an historic overview of structural concepts for the Moon. While the focus is structural engineering for the Moon, the ancillary but critical topics of human survival on the Moon, the economical foundations of a lunar settlement, how the lunar settlement fits into humanity’s expansion to Mars, and the larger Earth-Moon-Mars system, are all part of this great adventure, and will be touched upon. Students will come away from this class with the knowledge of how this exciting research area may evolve in the next few decades.

OYSTERS THEN AND NOW: REVOLUTIONARY SEAFOOD RESEARCH AT RUTGERS

David Bushek (Marine and Coastal Sciences) and Daphne Munroe (Marine and Coastal Sciences)

Ever wonder where the shellfish on your plate comes from? If you are eating oysters, clams or scallops, the likely answer is New Jersey. Rutgers shellfish scientists have played a major role in the development and sustainability of the farms and fisheries that produce these delicious seafoods. From discoveries of the best ways to culture and harvest shellfish, and studies of the diseases that affect the wild populations — Rutgers has been at the forefront of academic innovation in shellfish food production for over 125 years. This seminar will focus on the shellfish resources and industry in New Jersey — its history and the role that Rutgers researchers have played in helping shape it. The costs and benefits of these foods will be discussed in terms of human health, production costs, and ecological interactions. Field trips to Rutgers research facilities will allow students to explore first-hand the shellfish industry in New Jersey and the research that continues today.
GREAT IDEAS IN BIOLOGY

Gyan Bhanot (Molecular Biology and Biochemistry; Physics)

Life on Earth began more than two billion years ago. In this seminar, we will begin by discussing scientific theories about the origins of life. We will trace the evolution of life from two billion years ago to today, by trying to understand the mechanisms it had to invent and then evolve into the enormous diversity of life we see around us. Examples of some of these inventions are the genetic code, mechanisms of energy production, the complex cell, sex, motion, vision, hot blood, consciousness, and death. Our discussions will broadly follow the structure of the book, Life Ascending: The Ten Great Inventions of Evolution by Nick Lane.

BIG DATA: REVOLUTION AND REALITY

Javier Cabrera (Statistics) and Ryan Womack (Rutgers University Libraries)

Talk of Big Data is ubiquitous, but what does this mean in practice? This seminar explores the impact that large scale data collection and analytics are having in academia and business. Web data collection is transforming marketing and economic production. Massive genomic databases are transforming medical research. And text mining is transforming the study of humanities. Meanwhile, merged databases of administrative records increase the potential for both greater social understanding and reduced privacy. New technological tools and approaches are required to handle massive data arrays in physics and astronomy. In business, large databases collect information in real-time and are mined for instant decision-making, such as credit card fraud detection, requiring speed and accuracy. What unique challenges in statistical methodology and computing does Big Data bring? What are the tools of this new trade and what are the traps and tricks of Big Data analytics? What kinds of jobs and careers are being created in Big Data fields, and what skills and degrees do they require? Readings and class discussions will explore the implications of Big Data in each of these areas, and student presentations will allow each student to explore a topic of interest in more detail. Students will emerge with an appreciation for the realities and potential of Big Data to transform our collective future.

STEM CELLS AND BIOENGINEERING

Li Cai (Biomedical Engineering)

Bioengineering and regenerative medicine seek to develop new therapies for patients with injuries and degenerative diseases. The source of cells for these therapies remains a hot topic of interest. The unlimited potential of stem cells has ignited the creativity and imagination of scientists across multiple disciplines. Future development of this technology depends on increased understanding and effective utilization of stem cells. This seminar will introduce students to the biological, biomedical, biomaterial, and bioengineering of this new discipline. Students will be introduced to the world of stem cells. We will discuss their definition, origin, and classification, as well as applications of these cells in regenerative medicine. Upon completion of this seminar, students will know the intellectual and conceptual vocabulary required to further pursue an interest in stem cell research and the regenerative medical profession.

OBESITY TODAY:
HEALTH, ENVIRONMENT, AND SOCIETY

Sara Campbell (Exercise Science and Sports Studies)

Obesity has become a significant health and societal issue reaching pandemic levels. Our environment appears to favor obesity and as such has been defined as “the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations.” To date most of the strategies aimed at obesity focus on prevention and treatment, specifically pharmacological and lifestyle interventions. We will focus on investigating and understanding the environments that promote high energy intake and sedentary behavior and their physiological consequences. Students will learn about making healthy eating choices and exercise plans.

COLLAPSE OF CIVILIZATIONS

Kuang Yu Chen (Chemistry and Chemical Biology)

Throughout history, civilizations prospered and collapsed: Minoan, Mayan, Angkor, and Papanui all suddenly collapsed at their peak, either due to a natural disaster of biblical scale or man-made disasters. In this global, digital, and big-data era, we are facing challenges of unprecedented scale: climate change, water supply, healthcare, environmental sustainability, and waste management, to name a few. If not managed well, these problems can turn into disasters capable of destroying modern civilization. This seminar will focus first on the past, asking what lessons can be learned by studying the collapse of ancient civilizations and how we can steer clear of the same fate. We will then examine urgent global issues that could lead to a similar collapse, including climate change, groundwater contamination, GPGP (Great Pacific Garbage Patch), deforestation, WEEE (Waste of Electronics and Electric Equipment), and chemical waste. We will look at examples from China, Australia, and Hispaniola to illustrate the perils of an environmental disaster and its impact on the survival of global civilization.

THE ROLE OF PHARMACEUTICALS IN MODERN HEALTH CARE

John Colaizzi (Pharmacy)

What are pharmaceuticals and how do they benefit people individually and society as a whole? These and other questions are explored and answered in the context of the U.S. and global health care systems. In recognition of Rutgers’ 250th anniversary, the course will emphasize the major and historic role of the Pharmaceutical Industry in New Jersey’s technological and economic advancement. The course will also discuss ways to prepare for careers in the pharmaceutical industry and related health care fields. Controversies surrounding issues like the opioid epidemic will also be discussed.

WARS OF THE FUTURE:
CHEMICAL AND BIOLOGICAL WEAPONS

Donald Gerecke (Pharmacology and Toxicology)

In this semester we will examine potential weapons of biowarfare — including biological, chemical, and nuclear weapons — from several perspectives. Topics include their mechanism of action, biological impact, detection and recognition, epidemiology, and treatment. Using risk assessment and critical thinking, we will evaluate the potential dangers and effectiveness of using these types of weapons. We will also investigate strategies for defense against attacks, and the bioethical challenges of anti-bioterror research.
THE THEORY THAT WOULDN'T DIE
Edwin Green (Ecology, Evolution, and Natural Resources)

What is the difference between a guess and an inference? An inference is based on evidence and reasoning, and scientists use inference to develop theories. In this seminar, we will explore the life (and death?) of one particular theorem: the Bayes' theorem of probability. We will trace the fascinating tale of how Bayes' theorem has been declared dead several times by leading mathematical statisticians, only to keep popping up as investigators in other fields used it to solve real problems like cracking the Enigma code in WWII and locating missing nuclear bombs during the Cold War.

LEARNING TO CREATE BEAUTIFUL ARTWORK WITH POLYNOMIOGRAPHY
Bahman Kalantari (Computer Science)

Through a unique software, called Polynomiography, you will be introduced to a fantastic, very powerful, and easy to use artistic visualization medium, where polynomials turn into 2D images that can be used to create artwork of diverse types, to invent games, and to discover many new concepts as well as creative and innovative ideas that can be applied to many subject areas. Students of Polynomiography courses have found its applications in many fields of study: art, math, computer science, dance, linguistics, psychology, physics, chemistry, architecture, cryptography, and more. Working with Polynomiography software is similar to learning to work with a sophisticated camera: one needs to learn the basics, of course, but the rest is up to the photographer. (See www.polynomiography.com or Polynomiography on Facebook for more information).

PROCESSED FOOD: IS IT A NECESSARY EVIL?
Mukund Karwe (Food Science)

In this seminar we will cover various aspects of food processing: how food is processed, why food is processed, and the positive and negative impacts of processing. Are we doing it right? What would the world be like without processed foods? Can we live without processed foods? Who benefits from them? And what are the new and innovative food processing technologies? Processed foods have been receiving a bad rap for some time and are considered to be a major contributor to the obesity crisis and other chronic diseases. This seminar will teach students to collect good information on the topic, learn to decipher between subjective and objective judgments, and to promote scientific and logical thinking. In addition, there will be several laboratory scale demonstrations of food processing operations.

SPACE EXPLORATION IN THE 21ST CENTURY
Doyle Knight (Mechanical and Aerospace Engineering)

This seminar will explore the economic, political, and social impact of the extraordinary growth of space exploration in the 21st century. In the previous century, space exploration was dominated by the U.S. and Soviet Union. But the past decade has witnessed unprecedented growth in both government and private space ventures, and space exploration is now a prominent activity in many nations. Currently, nine countries plus Europe (European Space Agency) are engaged in space missions, and more than 50 countries presently operate earth satellites for telecommunications, weather, surveillance, and other purposes. Three examples illustrate the breadth of 21st century space exploration: a private US company (SpaceX) now transports essential supplies to the International Space Station; China has now landed an unmanned vehicle on the moon; and India recently launched an unmanned space probe to Mars.

OF (CYBER-) TINMAN AND SCARECROW: ADVANCES IN BIOMEDICAL RESEARCH, FOCUSING ON DISEASES OF THE HEART AND THE BRAIN
Maria Konsolaki (Genetics) and Sunita Kramer (Associate Dean of Academic Affairs, Honors College)

The heart and the brain are the two most vital organs in the human body; but how much do we know about them? By studying the development of non-human organisms, such as fruit flies, worms, and mice, scientists have discovered that the genes controlling the pattern of the body are almost the same in all animals. For example, the genes that instruct fly embryos to form wings and human embryos to form arms and legs are nearly identical. Through lectures, class activities, discussions, and lab visits, we will focus on how the study of “model” organisms can transform our understanding of both the healthy human body and human diseases, particularly those that affect the heart and the brain. Classes will include a guided visit to the Rutgers Cell and DNA Repository (RUCDR), the largest national repository of human blood samples from patients with neurological and neurodegenerative diseases. In addition, students will visit the “Body Works: Pulse” exhibit at the Discovery Center in Times Square, NY. This exhibit incorporates thoughts on the challenges that the human body has to face in navigating the 21st century.

GETTING THE MOST FROM VISUAL AND TEXTUAL HEALTH INFORMATION ON THE WEB
Casimir Kulikowski (Computer Science)

There is an abundance of information on the web about various medical conditions, and search engines allow one to pick and choose from a wide range of sources. Unfortunately, it is difficult to assess the relevance and reliability of many of these sources, so methods for assessing them is an important open area of research in health informatics. We will explore effective methods for visualizing health information and the opportunities and challenges this presents to overcoming the many limitations of conventional querying about clinical questions, and the kinds of summaries used in health records that rely on textual or narrative content.

MIND-BODY APPROACHES TO MANAGING STRESS
Paul Lehrer (RWJ-Psychiatry)

You will learn about several ways that voluntary control of the body (muscles, heart, lungs, etc.) can help manage psychological stress and some psychiatric and medical diseases, which have direct application for everyone, from athletes to artists. The seminar will include personal training and research readings on such topics as progressive muscle relaxation, self-hypnosis, and biofeedback, and include experiential learning. You will learn to relax your muscles, to control your heart rate and skin temperature, and observe the effects on your emotions, sleep patterns, and tolerance for stress.
THE GAIA HYPOTHESIS, CLIMATE, AND ECOSYSTEMS

Benjamin Lintner (Environmental Science)

Introduced by scientist James Lovelock and microbiologist Lynn Margulis in the 1970s, the Gaia Hypothesis proposes that organisms modify their environment in such a way to produce conditions more conducive to their existence. The Gaia Hypothesis has evolved into various forms, some of which (“Earth as a single organism”) have inspired considerable controversy. On the other hand, the scientific community has come to accept some tenets of Gaia. In this seminar, we will consider Gaia through the lens of our current scientific understanding of interactions between ecosystems and climate. Our discussions will focus on two geographic regions, the Amazon rainforest of South America and the Sahel/Sahara transition zone in West Africa, highlighting the key factors behind observed and simulated coupled climate-ecosystem variability and change in the past and present as well as in projections for the future. We will also examine the colorful history of the Gaia Hypothesis and philosophical considerations about the nature of modern scientific thought, such as what constitutes “good science.”

KITCHEN CHEMISTRY AND FOOD PHYSICS

Richard Ludescher

(Dean of Academic Programs, SEBS; Food Science)

What’s really in that cheeseburger? Foods are complex and heterogeneous mixtures of bio-molecules (starch, fat, protein, vitamins, colors, flavors, etc.) that provide nutrition and, of course, are tasty to eat. The quality of foods is related to many factors: safety, physical properties (texture), chemical and physical effects of processing and cooking, stability, sensory appeal, and more. This course will investigate how fundamental concepts in biology, chemistry, and physics are used to describe, explain, and manipulate the properties and ensure the high quality of foods. In the seminar, we will prepare some foods, play with some food ingredients, watch videos, discuss issues related to genetic engineering, and go behind the scenes in a commercial kitchen, all the while analyzing specific topics and foods of interest to students in the class. The course will culminate in a group project where students analyze a food of their choice and present their findings to the class.

WHAT IS PLASTICS ENGINEERING AND WHY SHOULD WE CARE?

Jennifer Lynch (Materials Science and Engineering) and Thomas Nosker (Materials Science and Engineering)

Americans have a love-hate affair with plastic. We often look down on plastic imitations of natural products, yet we use plastic every day — and there are more than 10,000 kinds of plastic! This seminar focuses on the importance of plastics recycling and engineering for creating structural materials. We will discuss the development of recycled plastic lumber — an advancement that resulted in structural plastic lumber — and its infrastructure applications. Advanced materials research at Rutgers has resulted in patented and licensed recycled plastic blends used in railroad ties, pilings, I-beams, bridge substructure, and decking. The seminar culminates in a field trip to a vehicular bridge in New Jersey composed of a recycled plastic lumber blend or to a plant where recycled plastic lumber is manufactured.

FOOD MICROBES: WHAT AND WHERE ARE THEY?

Karl Matthews (Food Microbiology)

This course provides a window into the world of food microbiology and food science. We will explore popular trends and myths related to food microbes. Discussions will center on topics including probiotics, double-dipping, food safety myths (the five-second rule), and how to avoid foodborne illness when traveling. Finally, we will address the issue of food additives/antimicrobials in the context of food safety.

WATER RESOURCES ENGINEERING: A CLOSE-UP LOOK AT THE RARITAN RIVER

Monica Mazurek (Civil and Environmental Engineering)

Water resources have been essential infrastructure for societies settling along the eastern coast of the United States. In particular, the Raritan River and its watershed has been crucial for the growth of commerce and communities in Northern New Jersey since before the American Revolution. This course combines field trips along the Delaware-Raritan Canal to examine hydrologic and chemical properties of the Raritan River. We will view US Geological Survey monitoring sites along the Raritan, examine ongoing water quality/water quantity parameters, and visit a drinking water treatment plant. We will explore Raritan River water property data using Geospatial Information Software (GIS) to understand the hydrologic and chemical information needed to manage the Raritan River as an essential regional resource for the present and future.

EXPERIMENTAL PHYSIOLOGY

Gary Merrill (Cell Biology and Neuroscience)

How does the human body work? Physiology holds the answer. This seminar will focus on experimental approaches that have been used by physiologists to solve some of medicine’s pressing problems. Through a combination of lectures, laboratory exercises and discussion you will understand the relevance of physiology to human medicine.

SPINAL CORD INJURY AND STEM CELLS: PUSHING THE FRONTIERS, RAISING THE ETHICAL QUESTIONS

Patricia Morton, Martin Grunet, and Wise Young (Cell Biology and Neuroscience)

Rutgers is home to one of the leading centers for spinal cord injury research in the nation. Drawing on the expertise of our world-class research center, this seminar will introduce students to scientific, social, and political issues related to spinal cord injury and stem cell research. Leading experts will present lectures to address the challenges and state of spinal cord injury research, clinical trials and the China SCI Clinical Trial Network, the capabilities of stem cells, and the role of public advocates in scientific research and stem cell legislation in New Jersey. Special presentations by people who have spinal cord injuries will help students understand what it is like to live with a spinal cord injury.
THE FUTURE IS SOLAR: HARNESING SUNLIGHT TO MEET WORLDWIDE ENERGY DEMANDS

Robert Niedereman (Molecular Biology and Biochemistry)

Within fifty years, the world’s primary energy source, usable fossil fuel, will be depleted. Where will our energy come from then? One answer lies in our ability to harness sunlight as a source of clean and renewable energy. In this seminar students will learn how an improved understanding of photosynthesis — especially in simple organisms such as photosynthetic bacteria — can help scientists harness solar energy for a variety of applications: from solar-driven microbial bio-refineries that produce molecular hydrogen as a fuel source, to the fabrication of bio-solar photoelectric cells that can convert sunlight into electric current. Our readings and discussions will be based on current popular science literature.

ILLUSIONS: A ROYAL PATH TO BRAIN RESEARCH

Thomas Papathomas (Biomedical Engineering; Laboratory for Vision Research; Campus Dean, Busch)

In the famous “figure-ground” drawing, a black-and-white image appears to be a vase or two profiles facing each other. Which is it? The answer depends on factors we will study in this course. This seminar presents an interdisciplinary approach to brain research using visual and auditory illusions. First, we will examine how the brain organizes information that it gathers through sight and sound by using psychophysical methods and brain imaging. Next, we will use illusions in vision and audition to test the hypothesis that perception is not only an automatic, data-driven (“bottomup”) process, but it is also subject to cognitive, schema-driven (“topdown”) influences. Examples will include an “ever-ascending pitch illusion,” the “hollow mask illusion,” striking 3D art pieces (“reverspectives”) that appear to move as one moves in front of them, as well as some of the instructor’s own illusions. One of the classes will be a guided tour of the Zimmerli Museum.

GLOBAL ENVIRONMENTAL HEALTH: RUTGERS’ GLOBAL REACH!

Mark Robson (Entomology; Plant Biology and Pathology)

The world uses over five billion tons of pesticides every year, and twenty percent of these chemicals are used in the U.S., largely for agriculture. What are the consequences of pesticide exposure for human health and the overall health of our planet? In this seminar, we will discuss global environmental health issues, in particular those dealing with problems such as water and air pollution, food production and safety, and infectious and occupational diseases. Professor Robson will share experiences from developing countries in Southeast Asia and West Africa. Case studies and current research will be used as illustrations.

UNDERSTANDING AND PREVENTING FOOD POISONING

Donald Schaffner (Food Science)

The United States Centers for Disease Control and Prevention estimates that foodborne pathogenic microorganisms cause 9.4 million illnesses and over 1,000 deaths in the U.S. every year. The 250 year history of Rutgers University includes one notable food poisoning event. In November 1964, a food poisoning outbreak struck Rutgers. More than 200 students were sickened by food served at a university dining hall, and in response to this event, a food safety program was put in place to prevent such an occurrence from ever happening again. Students in this course will learn how foods are tested for foodborne bacteria, and how food safety microbiologists and others assure the safety of food supply.
THE UNIVERSE: WHAT WE KNOW AND WHAT WE DON’T
Stephen Schnetzer (Physics and Astronomy)
This seminar explores what we have learned about the fundamental physics of elementary particles and cosmology over the past fifty years as well as the current mysteries and unknowns. Through our discussions, students will gain an idea of what fundamental physics research is and the pressing questions that we are currently striving to answer. The course is based on an article by Steven Weinberg from the New York Review of Books entitled: “Physics: What We Do and Don’t Know.” The seminar will be at a serious level, but the use of mathematics will be kept to a minimum. Students who have taken college-prep level mathematics in high school should be well prepared.

INTRODUCTION TO CHAOS AND PATTERN FORMATION
Troy Shinbrot (Biomedical Engineering)
In this seminar we will discuss several examples of chaos and pattern formation from physics, chemistry, and biology. We will explore examples such as the dripping faucet — which we will show undergoes a transition to periodic, at low water flow, to period doubling, to chaotic as the flow rate increases. We will discuss the history of the field starting with Poincaré’s revelation that planetary orbits in the solar system are not stable, leading through Lorenz’s discovery that models for the weather exhibit strange attractors, and culminating in modern studies that reveal chaos and pattern formation in the heart. The seminar will be example-oriented, using simple models that only require elementary algebra.

FOOD FOR THE 21ST CENTURY: CAN WE FEED 11 BILLION PEOPLE?
Paul Takhistov (Food Science)
Feeding the world’s growing population is not an easy task. It is estimated that there will be 11 billion people on the planet by 2100. Can we produce enough food for all people sustainably and can we afford it? With modern science and technologies the food industry has gained a whole new set of tools to improve certain properties of food and associated processes that are necessary for food production. However, food production should never come at the expense of human health. In this seminar we will discuss principles of the food supply chain, the modern approaches to design food products, and the ways to create a sustainable food future. We will also discuss applicability of new sustainable sources of food such as algae, insects and biologically derived polysaccharides as food supplements. During the course, students will have an opportunity to prepare some formulations using new food materials and technologies, such as edible films, 3D printing, and more.

INSPIRATION, INVENTION, AND INNOVATION
Kathryn Uhrich (Chemistry and Chemical Biology)
What does it mean to be creative? What/who is an inventor and how do they transform inventive concepts into reality? How do innovative transformations, such as Van Gogh’s paintings and biodegradable cardiac stents, impact humanity? This seminar explores the concepts of invention and innovation through the lenses of art and science. From examining inventions of modern artists to evaluating innovations by modern scientists, this course probes the links between inspiration, invention and innovation. The course will include a trip to the Museum of Modern Art (NYC) and Edison’s lab (NJ). This course is appropriate for non-science and non-arts majors; the only requirements are curiosity and critical thinking.
GEMS AND MINERAL COLLECTING
Jill Van Tongeren (Earth and Planetary Sciences)
Gems and minerals have had a special place in society from the dawn of civilization. This seminar will be conducted during three day-long adventures. During one trip we will visit the Gems and Minerals exhibit at the American Museum of Natural History in NYC, meet the Curator, and take a behind-the-scenes tour of the collections of the museum that are not typically on display for the public. In a second trip, we will visit the Gemological Institutes of America in NYC and see how diamonds are inspected and graded for the jewelry industry. Our final trip will be a visit to the Franklin Mine in New Jersey, where we will be able to tour the mine, prospect for gems, and hunt for minerals in a region known for its UV-fluorescent minerals.

GREEN-FLUORESCENT PROTEIN: APPLICATIONS OF THIS AMAZING PROTEIN
William Ward (Biochemistry and Microbiology)
Green-fluorescent protein (GFP) is one of the most important reporter proteins in all of biology and biotechnology. Unlike the chromoproteins, hemoglobin, cytochrome C, and chlorophyll-containing plant proteins, GFP is the only chromoprotein that makes its own chromophore. In this seminar, we will discuss the importance of this feature for molecular biologist who can genetically label any colorless protein, or any cell, tissue, organ, or organism with a single gene that codes for GFP. For example, labeling cancer cells with the GFP gene allows a scientist to follow metastasis wherever the cancer cells move. The label is genetically replicated, so all progeny cells are brilliantly fluorescent. You may have seen photographs of fluorescent plants, fish, pigs, or cats. More than just novelties, these fluorescent plants and animals produce offspring that are equally fluorescent. Join this seminar for an opportunity to work with an expert in the biochemistry of GFP.

METABOLISM: FROM LAVOISIER TO METABOLOMICS
Malcolm Watford (Nutritional Sciences)
How often have you heard the statement “I am fat because I have a slow metabolism”? In this course we will study all aspects of metabolism from the first studies of Lavoisier in 1776, when he placed a guinea pig, named Gina, in a calorimeter, to the present day field of Metabolomics. We will consider how metabolism is changed in conditions such as obesity, diabetes, and cancer, and how understanding such changes may lead to innovative treatments. Each topic will begin with some historical details, but the main part of our discussions will focus on the potential of individualized medicine and nutrition to maintain a healthy metabolism. Topics will include: Brown Fat, the fat that makes you thin; Leptin, the cure for obesity (that wasn’t); the Warburg effect in Cancer cells; treatment of diabetes by gene therapy to change metabolism. The answer to the opening question posed here? A slow metabolism is not the reason you are fat, the evidence for which will be discussed in class.

LIFE ON MARS
Nathan Yee (Environmental Sciences; Earth and Planetary Sciences)
Are we alone in the universe? Where did life begin? Is there life on Mars? How do we detect life on another planet? These are some of the biggest questions in science today. Since August 2012, the Mars Science Laboratory rover Curiosity has been exploring the planet Mars and returning a wealth of new information about the Martian surface. Its mission is to determine the planet’s habitability and assess whether Mars ever had an environment able to support microbial life. Recent data from Curiosity suggest that an ancient Martian lake may have harbored microbes that eat rocks. In this seminar, we will examine the new data returned by Curiosity and critically analyze the evidence for life on Mars. We will discuss the methods for life detection and evaluate the claims of bacterial fossils in the Martian meteorite ALH84001. Finally, we will explore the planetary chemistry required to sustain life and debate whether or not microbes could have ever lived on Mars.

ROBOTICS: THE PAST, THE PRESENT, THE FUTURE
Jingang Yi (Mechanical Aerospace Engineering)
Most people know that robots are automated machines that do our bidding, including cleaning our floors, building our cars, and traveling millions of miles to other planets to do our research on alien environments. In this seminar we will explore both the hardware aspects of a robot (including structure, function, components, and materials), and the software side of robotics (the brains behind how a robot functions). Of course, no robotics course would be complete without the fun of building robots in the lab, so anticipate that too! In this interactive seminar, you will find out what is out there in the commercial world of robotics as well as what is being developed in the university.

HARRY POTTER AND BEHAVIORAL GENETICS
Lei Yu (Genetics; Center of Alcohol Studies)
Our behavioral patterns are deeply rooted in genetics. Not only do they include patterns of physical behaviors, but also patterns of cognition and thought processes. We readily observe such patterns in everyday life, even though it is not easy to determine their genetic basis. In this seminar, we will use examples of behavior patterns from the Harry Potter book series as a literary platform to introduce scientific approaches for studying behavioral genetics.
ABOUT BYRNE SEMINARS

The First-Year Seminars at Rutgers-New Brunswick were launched in fall 2007, and the program was re-named the Byrne First-Year Seminars in fall 2008 to honor a generous donation by Mr. and Mrs. John J. Byrne. Mr. “Jack” Byrne graduated from Rutgers College in 1954. Byrne Seminars were created to realize the Byrne family vision of introducing students to research faculty in a small seminar setting at the outset of their academic journey.

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