Celebrating a Decade of Discovery

This year at Rutgers-New Brunswick we celebrate the Byrne Seminars’ Decade of Discovery. Launched in Fall 2007, these first-year seminars were named to honor Dorothy and John J. Byrne. Supported by a generous donation from the Byrne family, these seminars were created to introduce first-year students to research at the outset of their academic career.

During these ten years, the Byrne Program has grown significantly. In our inaugural year, just over 1,100 students took a Byrne; in our most recent academic year we had more than 3,200. Likewise, the number of seminars have increased from 110 to over 180. Byrne Seminars have included faculty from 18 schools and institutes across the university, exploring various themes from Re-Imagining the City to The Politics of Knowledge. In total, over 20,000 first-year students have enjoyed these special opportunities to learn from our research faculty in low-pressure, high-quality classes.

This year we will revisit the best of our past accomplishments while exploring new ways to awaken you to the joy at the heart of all academic inquiry and research.
We are extremely proud to celebrate the 10th anniversary of the Byrne Seminars. Thanks to the generous support of Dorothy and John J. “Jack” Byrne, we have built a first-year seminar program that ignites the intellectual passions of creative students at the beginning of their academic careers. Some of this year’s Byrne seminars are led by professors who have participated in the program from its very inception, while others are taught by faculty who have just joined the Byrne Seminars community and who bring new areas of inquiry to the impressive body of seminar offerings.

This year’s theme, “Celebrating a Decade of Discovery,” is particularly fitting because the Byrne Seminars are designed to encourage incoming students to explore new areas of interest as they develop their own intellectual focus and define their academic pursuits—and the Byrne Seminars have helped thousands of students forge their academic path through Rutgers over the last ten years.

Through the one-credit Byrne Seminars, incoming students are given the opportunity to study with our world-class faculty in small, discussion-based seminars at the start of their time at Rutgers. 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.

I strongly encourage all first-year students to browse the tremendous offerings from this catalogue and enroll in a Byrne Seminar. 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
FROM THE VICE CHANCELLOR

As we enter the 10th year of the Byrne Seminars, we reflect on the many opportunities that have resulted from the generosity of Dorothy and John J. Byrne. Since 2007, these one-credit seminars have allowed more than 20,000 first-year students to explore unique research and academic areas, which piqued their interest in fields outside of their comfort zone or intended major—disaster response and homeland security, climate change, digital culture, social movements and mass psychologies, nonprofit leadership, and yoga, just to name a few.

Students who took a Byrne Seminar during their first year reported that the opportunity to study with a tenured professor in a small seminar environment had a profound impact on their collegiate experience; often opening the door to research opportunities and providing direction in choosing a major. The Byrne experience allows students to form a community of friends with whom they continue to share both academic and co-curricular interests and activities as they navigate life at Rutgers and beyond.

I applaud the students who explore the diverse course offerings through Byrne Seminars. I would also like to thank the faculty across the university who go above and beyond—from offering research assistantships through the Aresty Research Center, to providing sage advice to students applying to graduate school or entering the workforce.

I encourage students to take advantage of the opportunity to participate in a Byrne Seminar. They play an important role in welcoming students to Rutgers, and to the kind of life enrichment that we are certain the love of learning brings.

Ben Sifuentes-Jáuregui
Vice Chancellor, Undergraduate Academic Affairs
WHAT ARE 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 passion, 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 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: byrneseminars@rutgers.edu / Call 848.932.6971
Or visit our website: WWW.BYRNE.RUTGERS.EDU

Chancellor Richard L. Edwards announced RU-1st in 2016 as an initiative to increase support, coordination, and programming designed to assist first-generation, high-need, and/or underrepresented students. The main objective of RU-1st is to make Rutgers more accessible and supportive for students who are the first in their family to attend college.

RU-1st provides a series of initiatives that includes high-impact programming and identifying school-based resources for first-generation, and/or underrepresented students that eases the transition to college, and ultimately assists with student retention and graduation. RU-1st will continue to expand on the successful outcome based models of units within Student Access & Educational Equity and increase the Rutgers community dialogue on issues of equity, diversity, and access.

As part of the RU-1st initiatives, we are expanding Byrne Seminars aimed at increasing awareness of critical and wide-ranging local, state, national and other important issues confronting higher education. Throughout the catalog you will find the icon next to select seminars that are specifically designed with first-generation students in mind. These seminars will highlight the dialogue on issues of access and equality that we aim to foster through RU-1st initiatives.
FALL 2017
Trees: Your Campus and the Environment
Jason Grabosky (Ecology, Evolution and Natural Resources)

Trees, like Rutgers, can exist for 250 years or 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 13522

A Decade of Genomic DNA Work: Creating a Better and Healthy Future
Samuel Gunderson (Molecular Biology and Biochemistry)
Alice Lia (Cell Biology and Neuroscience)

Maintaining human health requires an amazing feat of biological teamwork. A host of players—from individual genes and molecules to environmental and behavioral factors—work together to carry out a wide range of intricate and interconnected biological processes that are integrated and translated to the biological readouts of well-being versus ill-being. Advancements in DNA sequencing technologies over the past decade have enabled us to learn of our genomic DNA sequence, of our unique set of genom signatures, and to relate such information to our future health and disease liabilities. Indeed, we now have a number of DTC (direct-to-consumer) gene testing companies that allow you to learn of your heritage as well as liabilities. Indeed, we now have a number of DTC (direct-to-consumer) gene testing companies that allow you to learn of your heritage as well as disease susceptibility. In between class discussions, students will engage in laboratory bench work to experience and consolidate what they learned.

01:090:101 section AB index 12008

Hacking Sound: A Hands-on Introduction to Electronic Music
Steven Kemper (Music)

Since the late 19th 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, programming, 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.

01:090:101 section 66 index 10661

Clean Energy: Batteries and Solar Cells
Lisa Klein (Materials Science and Engineering)

What is needed to improve the sustainable energy technologies we already have? What is needed to make new technologies practical and clean in the area of energy generation? We will explore energy storage in devices such as batteries and energy conversion in devices such as solar cells and fuel cells. We will talk about active research at Rutgers on alternative energy materials and systems. In the lab, we will assemble and test our own dye-sensitized solar cells.

01:090:101 section 49 index 08609

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!

01:090:101 section 58 index 13631
Launching Your Successful STEM Career
Andrew Baker (Physics and Astronomy)
Charles Keeton (Faculty Director, Aresty Research Center; Physics and Astronomy)

Science, Technology, Engineering, and Mathematics (STEM) fields offer exciting opportunities for careers of discovery, innovation, and helping others. But how does one prepare for and achieve such a career? In this seminar, students will learn about the critical role played by research in STEM fields, the skills and qualities that are valuable in research (e.g., programming, teamwork, communication, and persistence in the face of obstacles), and the practical steps they can take at Rutgers to foster success in STEM majors and careers. Students will interact with guest researchers from multiple STEM fields, explore the life stories of STEM professionals like 2015 Presidential Medal of Freedom winner Katherine Johnson and 2016 Rutgers honorary degree recipient Jocelyn Bell Burnell, and receive training in basic programming in the Python language. As a final project, students will work in teams to reproduce some of the calculations made by Johnson and others to help launch NASA rockets as part of the Mercury, Gemini, and Apollo programs.

01:090:101 section 21 index 06138

Performing Latinidades: Latin@s in Film, Visual Arts and Performance
Yolanda Martínez-San Miguel (Latino and Caribbean Studies)

Latinos are becoming increasingly visible in the United States. According to the 2010 Census in New Brunswick, NJ, 49.9% of the population identifies as Hispanic or Latin@. As a consequence, Latinos are becoming increasingly visible in cinema, television, visual arts and performance, and they are a central element in the definition of U.S. Americanness. This seminar will explore visual, cinematic and performatic depictions of Latinidad in the U.S. to meditate on how ethnic studies broadens our knowledge about contemporary American identities in the U.S. and the Global South. This seminar includes a trip to Museo del Barrio in NYC.

01:090:101 section 50 index 20861

The Paul Robeson Living-Learning Community was established in 1976 and is a symbolic acknowledgment of the late Paul Robeson, a celebrated African-American activist, scholar, artist, athlete, and Rutgers graduate. This community places special emphasis on aiding first-year students as they make the transition from high school to college. It encourages community interaction and involvement, scholarship, as well as self-growth. Community members stress cultural enrichment and awareness among themselves, other members of the residence hall and the Rutgers community. They work collaboratively with staff and faculty mentors towards academic achievement and excellence. The community strives to engender curiosity, interest and understanding of the history and origins of the African Diaspora and the relevance and importance of that understanding in day-to-day life. In collaboration with Learning Communities, Byrne Seminars is pleased to offer this specially designed seminar on the incredible life and work of Paul Robeson.

Paul Robeson as a Global Citizen
Edward Ramsamy (Africana Studies)
James Whitney III (Assistant Vice Chancellor, Undergraduate Academic Affairs)

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 this 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 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 study Paul Robeson’s artistic achievements as an actor on the stage and screen, especially with respect to how he tried to integrate “home” and “world” into his civil rights activism; (3) 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; (4) to examine his controversial associations with communist movements and the former Soviet Union.

01:090:101 section AC index 12009
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 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.

Sounding Play: Acoustic Ecology of Sports and Games
Eduardo Herrera (Music)

The intimate silence of the tennis court interrupted by a player’s grunt; the focused listening of a double Dutch jumper with ropes that move too fast to see; the country music song playing in the pickup truck you stole in a video game; chanting with 40,000 other fans against the wrong call the referee’s whistle just signaled. Sound is an essential component of sports and games. Both as players and spectators, people engage in listening, chanting, speaking, noise-making, music-making, and even staying silent as part of an auditory ecology that is intimately tied with the immersion, flow, and ultimately, the success of the activity. In this class we will explore a series of case studies within the game-sport continuum that address important questions about gender, race, social experience, and the nature and potentials of participatory sound making. These will include chanting and crowd noise in stadium sports (soccer, football, tennis), double Dutch rope-skipping, diegetic and non-diegetic music in open-world action games (Grand Theft Auto, Lord of the Rings Online), sound-driven designer board games (Space Alert, Escape: The Curse of the Temple), the sound crisis of motorsports (Formula 1 and Formula E), and music-rhythm games (Guitar Hero, Rock Band, and Dance Dance Revolution). Sound, ever present, becomes the basis for deep, intimate connections among and across players, gamers, and audiences.

Healthy Body, Healthy Mind: High Performance Training is Not Just for Athletes
Sunita Kramer (Associate Dean of Academic Affairs, Honors College)
Fikry Isaac MD MPH (Founder and Chief Executive Officer, WellWorld Consulting. Formerly Head of Global Health Services, Johnson & Johnson)

Maximizing energy and learning how to stay mentally focused are issues of primary concern to the endurance athlete. However, learning how to maximize performance should apply to anyone who wants to function at a high level, whether a corporate executive or a first-year college student. In this seminar, we will examine successful approaches to sustained high performance that have been used both on and off the playing field. Through readings and discussions, students will learn about the molecular and genetic basis for improving fitness, including changes in metabolism, recovery patterns, sleep, and mental health. Utilizing key principles for energy management from the Johnson & Johnson Human Performance Institute, students will also have the opportunity to explore ways to maximize their personal energy, to feel physically energized, emotionally connected, and mentally focused.

From Polar Bears to Palm Trees: New Jersey’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 New Jersey’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.

HONORS COLLEGE
BYRNE SEMINARS
For more than 120 years, Rutgers, The State University of New Jersey, and Johnson & Johnson have partnered to advance academic, research, and community service endeavors. Building on this long-established relationship and legacy of leadership, these special co-taught seminars by Rutgers faculty and Johnson & Johnson professionals will enhance the learning experience of students from multi-disciplinary areas of study. This initiative expands research ties, while introducing first-year students to an array of career and educational opportunities. Students will explore areas of common interest to both Rutgers and Johnson & Johnson, including global public health, health and wellness, ethics, community and leadership.

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The Art and Science of Positive Leadership
Sharon Lydon (Supply Chain Management)
Nancy Mark (Director, Health Care Compliance & Privacy, Johnson & Johnson)
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. While some may be born with a number of the attributes needed for outstanding leadership, it is well accepted that leadership is something that can be learned and that can be studied. This seminar explores qualitative and quantitative research “on leadership,” and 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 work environments, as well as leadership styles and competencies. Relevant issues related to women and ethnic minorities will also be discussed. The course includes readings and dynamic discussion, debate, role-play scenarios, and real-world visibility and exposure to leadership with distinguished course co-instructors, and guest speakers from academic, health care sector, and corporate leadership contexts.

Making a Difference: Nonprofit Leadership in Sub-Saharan Africa
Ronald Quincy (School of Social Work)
Conrad Person (Senior Director Ret., Corporate Contributions, Sub-Saharan Africa, Johnson & Johnson)
In this seminar students will work on capacity building projects with the co-instructors to support several civil society and nonprofit organizations in Kenya. Students will engage with the Mandela Washington Leadership Fellowship Alumni on their Civil Society Organization Projects in Kenya through the use of electronic media (e.g. Skype). The seminar will engage students with Johnson & Johnson leaders based both in the U.S. and in Sub-Saharan Africa about best practices in managing and leading African Civil Society Organizations. Students will take a trip to the UN to attend an international conference related to African Civil Society Organizations.

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 theoretical and secular one, and to trace the legacy of this divide in certain exemplary contributions to 20th-century literature and film.

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.
Representing Animals: The Case of Bears
Carole Allamand (French)
No animal is subject to more ambivalence than the bear. From Ursus Arctos Homibilis to Teddy, Winnie, and Gentle Ben, the bear’s myriad representations across the centuries have inspired at once dread and comfort, while evoking utter savagery as well as irresistible cuteness. This seminar will analyze the cultural roots of a contradiction that has impacted the ursine species all over the world, including in New Jersey, where black bears have been at the center of a two-decades-long controversy. Essays, shorts stories, poems, photographs, and films will help us reflect on the bears have been at the center of a two-decades-long controversy. Essays, shorts stories, poems, photographs, and films will help us reflect on the representations across the centuries have inspired at once dread and comfort, while evoking utter savagery as well as irresistible cuteness. This seminar will explore popular culture through a psychoanalytic lens. T. Corey Brennan (Classics)

Fake News, Implicit Bias, Bad Reasoning, and Misperception: Why Our Brains Make It Hard To Be Rational
Elisabeth Camp (Philosophy) Andrew Egan (Philosophy)
Scientists keep discovering new ways in which our perception and thought about the world systematically depart from a model of ideal rationality. Our actual perceptual and cognitive systems turn out to be structured in ways that regularly lead to profound distortions and biases. These factors then often lead us to form false beliefs about important matters. But because their influence is typically very hard to notice, it’s difficult to compensate for them. We will examine some key ways in which our perceptual and cognitive systems fail short of rational ideals, the origins and consequences—both positive and negative—of those failings, and what steps can be taken to ameliorate their potential harms.

It’s All in the Timing: The Serious Art of Comedy
Christopher Cartmill (Theater Arts)
What does it mean to be funny, especially in the context of performance? Why do laughter is human and universal, what is considered funny changes from culture to culture and age to age. This seminar seeks to examine comedic theatrical literature and performance from Tarrance to Chaplin, Molère to Bugs Bunny, from the Chinese “adjunct plays” (IJorui xí) to American stoms. Some of the comedians we will study include Richard Pryor, Tina Fey, Paul Rudnick and Dave Chapelle. We will also examine comedic moments from silent films to contemporary movies and television, exploring the work of Buster Keaton, Charlie Chaplin, Lucille Ball, Preston Sturgis, Ellen DeGeneres, Tyler Perry, SNL, and more.

The Jesuits: Ideals, Cultures and Controversies from 1540 to the Present
T. Corey Brennan (Classics)
Of all Catholic religious orders, the Jesuits (also known as the Society of Jesus) have been the most consistently innovative, international, influential—and mistrusted. This seminar offers a select intellectual and cultural history of perceptions and realities concerning the Society of Jesus from its foundation through the election in 2013 of Pope Francis, the first Jesuit pope. It was a Spanish aristocrat and ex-soldier, Ignatius of Loyola, who founded the Jesuits in 1540, amidst the severe religious crisis sparked by the Protestant Reformation; from the start, his followers were expected to go out into the world “and find God in all things.” And so the Jesuits were practical clothes while making a mark as timeless champions of the Papacy; rigorous thinkers, scientists, and educators; skilled architects, artists, composers and poets; feared counselors of state rulers; and fearless missionaries to distant locales, including Japan, China, India and the New World. In this seminar, students will screen video interviews with current leaders in Jesuit thought; and delve into unpublished documents bearing upon Papal and Jesuit history from a recently-uncovered private archive in Rome, digitized thanks to a grant of Rutgers University Strategic Funds.

The Piano and Its Ancestors
Rebecca Cypess (Music) Min Kwon (Music)
Co-taught by specialists in modern and historical keyboard instruments, this class will introduce students to the multi-faceted world of harpsichords and pianos. We will discuss case-studies in keyboard music and performance from 1600 to the present day, incorporating live demonstrations and performances. We will explore the differences between the instrument technologies and sounds, and discuss how those differences are reflected in composed music and manners of performance. We will discuss some music that can be played by both the modern piano and its ancestors (for example, Bach’s Italian Concertos, Mozart’s Rondo in A minor, and Beethoven’s “Moonlight” sonata), as well as some music that is usually the solo domain of harpsichordists (including Bach’s predecessors Froberger and Couperin) and some music that requires the modern piano (works from Ravel to the present day). Students will gain a new perspective on the history of the piano and its ancestors over 400 years. Class culminates with a field trip to a keyboard rental at Lincoln Center, NYC.

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.

Yankee Stadium
Teresa Collins (Thomas A. Edison Papers)

First-Year Seminars: Humanities
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 07 index 20406

Reading Squared
Martin Glesnerman (English)
This seminar will show you precisely how we read between the lines, and will enable you to do so. 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—and we will do so one chapter at a time. The seminar proposes ways to read narratives to find their core significance by looking at the complex web of word families. We use words constantly, but don’t pause to appreciate their complexity. The course will introduce students to words, and to using computer software that helps us read texts and derive complex understandings of how they are built and how they come to mean. The seminar meetings will initially focus on reading the novel, and developing ways to talk about words, and then becoming familiar with the software, and then exploring the text itself. 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 1937. The project, textRays, investigates networks of meaning in literary novels and does so at 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. The pedagogical aim of the course is to demystify some of the processes of making meaning. See textRays.com and ReadingSquared.com.
01:090:101 section 67 index 09686

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.
01:090:101 section 17 index 06135

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.
01:090:101 section 91 index 20872

Seoul Music: Historic and New Voices of Korea
Min Kwon (Music)
The folk music of Korea celebrates a tradition that stretches back over 1500 years and is a remarkable reflection of the history of fascinating Korean culture. Through these art forms continue to thrive in traditional arrangements, modern performers and composers draw inspiration from the enormous body of folk songs and often adapt them to modern instruments to present them in a new light. Transcriptions of these pieces offer performers opportunities to blend a variety of musical styles and adapt the classic melodies to their own expression. There will be live performances and demonstrations of Korean traditional instruments, as well as Korean inspired pieces on modern instruments by Rutgers Mason Gross students. The class will culminate with a field trip to The Korean Cultural Center in NYC and an attendance of a special concert. Open to students of all nationalities and backgrounds.
01:090:101 section 10 index 20755
Notes From the Rap Underground
Carter Mathes (English)

Over the past four decades Rap music has evolved into one of the most compelling musical forms across the globe. This course charts the incredible rise to prominence of the music by closely examining the aesthetic choices that creative artists have made throughout these formative decades. Our listening sessions and readings will focus specifically on how the idea of the underground has remained a pivotal element of rap, even in the shadows of its corporate, globalized mass production. The idea of the underground has taken shape within the music as a marker of stylistic tendencies that resist the lure of a more smoothed out and corporately palatable sound, and as a rubric that often defines more politically conscious rap music. We will consider the musical and cultural roots that have shaped the music, from blues lyricism and jazz improvisation, to Jamaican toasting and dub production. We will spend significant portions of our class meetings listening to the music and discussing its aesthetic features in order to develop a conceptual framework for thinking about what elements help to define an “underground sound”—both in terms of its sonic production and lyricism. We will read both academic and popular journalistic accounts of the music from the 1980s to the present. We will focus on artists including Freestyle Fellowship, Above the Law, Pharoahe Monch, MF Doom, Madlib, Jean Grae, Princess Nokia, De La Soul, Gato Boys, and others.

From the Bronx to the Supreme Court: My Beloved World, a memoir by Justice Sonia Sotomayor
Darnalis Otero-Torres (Spanish and Portuguese)

In My Beloved World (2013) Justice Sonia Sotomayor offers a candid reflection of her experiences as the daughter of Puerto Rican immigrants in the South Bronx. In studying the genre of the memoir, this seminar provides a critical and literary platform for discussing the convergence of the personal and the political. What are the most compelling events of Justice Sotomayor’s life? Do these experiences matter for a deeper and fuller understanding of the law in the highest court of the United States? This seminar will closely examine how Justice Sotomayor’s narrative leads her readers into the complex landscape of gender and social inequality, academic privilege, minority cultures, cultural identity, corporate politics, political activism, affirmative action, civil rights, language, literacy, and poverty, among others.

01:090:101 section 54 index 06151

Unmapping America Through Native American Narratives and Film
Angela Mullis (Director, Byrne Seminars)

Since the beginning of the Native American Renaissance in the 1960s, Native American 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 Native Americans. 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.

01:090:101 section 94 index 10789

Portraiture
Benjamin Paul (Art History)

Portraiture reflects how the concept of individuality has changed throughout history. While in the 15th-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 20th 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 15th-century Italy to its “deconstruction” in the 20th century. We will discuss these developments from the front of the originals in the collections of New York City museums, including the Metropolitan Museum and the Museum of Modern Art.

01:090:101 section 35 index 06145

Eco-Cinema: Nature and Environment in Film
Alexander Pichugin (German Language and Culture Studies)

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 human and our natural environment in meaningful and creative ways.

01:090:101 section 74 index 12201
lasting influences do these receptions have? Is it sound that way on the first performance? Why and why not? What do they know the expectations, but are not limited by them. How do those compositions create their work 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 of Fall 2017.

Rockin’ Roots, Global Reach: Telling the Story of Jersey’s Popular Music

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 tastes, values and behavior, they know the expectations, but are not limited by them. How do these compositions involve—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?

First Nights of Musical Performance

Nicholas Rennie (Music)

In this seminar we will explore the making and reception of the first performance of several works and the social, historical, and cultural context. The finding aids will be edited and published online, providing students a clear overview 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.

A Journey to Satan: Dante’s Inferno

Jonathan Saucedo (Rutgers 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 aid will be edited and published online, providing students a clear overview 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.

What is so Public About Our Streets?

Juan Ayala (Planning and Public Policy)

The Power of One: Understanding Resilience and Relationships

Mary Chayko (Communication)

“Selfies,” or photographs that an individual (or a group) takes of themselves that can be privately held, transferred to others, or displayed via social networks, are becoming a popular and culturally significant way that knowledge is produced and shared in modern digital cultures. In this course, we focus on three questions drawn from the instructor’s research and that of others who study selfies and digital culture: How do selfies “speak” as cultural objects, and how do they compare to other forms of communication and art? How is knowledge produced and shared in the process of communicating via selfies? How are power differentials expressed and experienced as selfies are taken, shared, and given meaning in a digital culture? The seminar includes two visits to the Zimmerli Art Museum.

First Years Seminar: Social Sciences

Selfies and Digital Culture

Cynthia Daniels (Political Science)

This seminar will analyze the political economy in the United States and around the world through social media, legal cases, and legislative battles. Over the past three years, hundreds of laws have passed in various states restricting access to abortion. Social media plays a major role in shaping public discourse regarding this politically volatile issue. This seminar will analyze the Roe v. Wade decision as well as the heated controversies which have grown up around the pre-life and pro-choice movements.
Leaderocy: Leading at the Speed of Now
Richard Dool
(Director, Master of Communication and Information Program)
Many believe that leaders in the 21st century face unprecedented challenges due to changes in globalization, diversity, the pace of organizations, systemic impatience, workforce trends and the advances in technology. These challenges are changing the workplace and demand new leadership competencies. Through this seminar, we will study a research project involving interviews with leaders from more than fifty companies in the United States, United Kingdom, China and India in conjunction with a Fortune 20 (GE) company’s research into “21st-Century Leadership” competencies. We will explore each of these competencies so students understand how to develop their own leadership brand. Students will consider various schools of thought on the attributes, behaviors, orientation and approaches of leaders— all in a search of how to best develop leaders and to understand what makes them effective. We will focus on emerging theories and models, including servant-leadership, transformational leadership and the contingency model. Students will learn the leading edge competencies, techniques and skills that are needed by 21st-century leaders through practical applications, including the use of case studies, vignettes and scenarios. We will use a series of self-assessment tools to allow students to assess their current leadership skills and identify any gaps. And finally, students will work to create their own Personal Leadership Development Plan.
01:090:101 section 34 index 20859

Moral and Ethical Dilemmas in Emergency Preparedness, Disaster Response and Homeland Security
John Farmer, Jr (School of Law; Special Counsel)
Ava Majlesi (Institute for Emergency Preparedness and Homeland Security)
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 apprehension; (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 10752

Populisms: Social Movements or Mass Psychologies?
Jerry Floersch (Social Work)
Jeffrey Longhofer (Social Work)
Populism has deep roots in U.S. history. And in the maelstrom of the Trump campaign one hears echoes of the 1892 platform of the People’s party (AKA, Populists): denunciations of biased media, illegal laborers, moral decadence, and corrupt politics. With the possible exception of Andrew Jackson (President, 1829-37) no other populist has succeeded at winning the presidency. Trump, moreover, shares with other recent presidential candidates (e.g., Patrick Buchanan and Alabaram governor George Wallace) a concern for the white, working-class American. And they also campaigned for "America First," a slogan and movement founded in 1940 opposing U.S. involvement in World War II. In this seminar, we will look at contemporary populism in the United States and Europe and how candidates on the left and right have claimed the mantle of populism. What does populism mean in our time and how has it changed? We will consider different understandings and manifestations of populism. Is populism a social movement, an ideology, a logic, a discourse, a strategy, or a style? How is populism performed (e.g., by Trump in the United States, Hofer in Austria, Wilders in the Netherlands, Petry in Germany, Farage in the United Kingdom). We will closely read the manifestos and documents produced by contemporary populists and consider them in relationship to historical precursors.
01:090:101 section 38 index 07162

Reading the Landscapes
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 landform 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 13524

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 06144

The Economics of College and Pro Football
Mark Killingsworth (Economics)
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 brief and the risk of injury is 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 the money for this come from at the college and pro levels, and where does all the money 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 41 index 06603

Diversity and the Politics of Higher Education
Catherine Lugg (Education Theory, Policy, and Administration)
This seminar will explore the issues involved with “Diversity and the Politics of Higher Education”. In particular, we will address diversity (racial, ethnic, gender, class, language, religious, sexual identity, and dis/ability) and how these issues of diversity shape the politics of higher education and “who gets what, when and how” (Laswell, 1936). For example, Affirmative Action remains a topic of blistering political attack, yet there is striking political silence on the advantages elite whites receive in college admissions thanks to the “legacy system.” At the close of the class, students will have the opportunity to speak with leading Rutgers professors and administrators who are first-generation college attendees and their own collegiate experiences.
01:090:101 section 85 index 10762
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.
01:090:101 section 16 index 12010

Revolutions in Transportation
Kecile Ralph (Planning and Public Policy)
Michael Smart (Planning and Public Policy)
This seminar will explore revolutionary transportation technologies. We will begin by examining past revolutions in transportation that have shaped our daily lives and the city as we know it, including railways, streetcars, the automobile, and the airplane. We will then examine ongoing revolutions in transportation, including high-speed rail, car-sharing, on-demand taxi services like Uber, freight containerization, and the logistics revolution. Finally, we will turn our attention toward emerging technologies that may reshape our daily lives and the urban experience from autonomous vehicles to the Hyperloop. Students will engage in researching a transportation revolution of their choosing. Seminar includes a trip to a freight distribution center and a transportation operations center.
01:090:101 section 80 index 09676

Urban Adventure
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.
01:090:101 section 78 index 20409

Cold War Politics and Policy Through Film and Novels
Hal Salzman (Public Policy)
Popular culture plays an important role in our understanding of global conflict and policy, perhaps most dramatically during the Cold War period. And the Cold War legacy still shapes current policy and politics. We will examine how popular films, movies, art, and novels portrayed the Cold War period and the relationship between the Soviet Union and the United States and current implications. Through iconic films exploring the cold war period, from the atomic bomb and Mutually Assured Destruction, to espionage wars, and with ending of the Soviet bloc, we will explore key post-war policy issues and areas of the globe the U.S., Eastern Europe, Latin America, and Asia. We will also visit the Zimmerli Art Museum for a tour of their world-renowned collection of nonconformist Soviet art, led by the exhibit’s curator.
01:090:101 section 56 index 09684

Paul Schalow (Asian Language and Cultures)
Friendship can be understood as the human need to appreciate and be appreciated by another person. At first glance, it seems a natural and unproblematic part of life. But, when dealing with friendship across cultures or species, or between humans and robots, the concept of friendship becomes surprisingly complex. Drawing on representations of friendship in Japanese anime, manga, cinema, and literary text, this seminar will explore themes such as friendship’s universality versus cultural specificity, its relationship to romance, and the impact of age, status, gender, and ethnicity on configurations of friendship. Students will have many opportunities to draw on and share their own knowledge of friendship in this cross-cultural inquiry.
01:090:101 section 69 index 20871

A Decade of Politics, Power and HERStories of LGBTQQ Communities Through Film
Mark Schuster (American Studies; Dean for Graduate Student Life)
Only recently have Americans begun to look at LGBTQQ communities as an acceptable way of loving, living, and expressing. The portrayal of sexually diverse communities will be interrogated through films over the past decade as a critical lens of the personal and political power over human beings. Through film, the class will discuss cultural perceptions and what has changed in the American landscape for communities and persons that identify as LGBTQQ and their families. Discussion-driven review of a social movement that has transformed from “hidden” and “closed” to more authentic and fluid identities, especially bisexual and transgender identities, and “branncomen” in cinema eroticism. Finally, the seminar will reflect on how films, cultures, and societies’ views have changed over the past decade.
01:090:101 section 82 index 10759

Washington, D.C., Fall 2017: What Are You Seeing?
Ruth Mandel (Political Science; Director, Eagleton Institute of Politics)
The seminar will be devoted to observations and analysis of the national political scene almost a year after the 2016 elections and the beginning of a new presidential administration. We will explore government and politics in Washington, DC in 2017, asking questions such as: Who is on the president’s team one year later? What has been accomplished in the first year of the presidency? How has the president established and built relationships with Congress, the media, and the American people? How are the three branches of government functioning? What is the national state of health? NATIONAL REPORT CARD: What have been the major accomplishments of the Trump administration so far? What have been the major failures of the Trump administration so far? What is the state of public opinion? What is the state of the opposition to the administration? We will look at past presidencies for context, but focus chiefly on the 45th POTUS.
01:090:101 section 63 index 13511

The Soul on Trial
Julien Musolino (Psychology)
Do human beings have a soul? Something that gives us free will, a moral compass, and is potentially capable of surviving the death of our physical self? A majority of people in the United States believe we do; and a wealth of popular books, articles, TV shows, and gurus of all stripes purport to have found convincing evidence for the existence of the soul. The current scientific consensus, however, flatly rejects any notion of “soul” or “spirit” as separate from the body. This seminar will explore the soul from three different perspectives: scientific, religious, and spiritual. The goal will be to achieve a balance of evidence for and against the existence of the soul.
01:090:101 section 48 index 20860

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 course will explore the journey towards a cooperative spirit and the outcomes that can result.
01:090:101 section 68 index 10756

The 2017 New Jersey Governor’s Race: What to Watch, How to Watch, and How to Participate
Kristoffer Shields (Eagleton Institute of Politics)
As one of only two states that will elect a governor in 2017, New Jersey will be a focal point of American politics this fall. Many of you will be first-time voters in this important state race. In this seminar, we will track the 2017 N.J. gubernatorial election, following the issues, strategies, and major events that happen along the way. We will invite guest speakers from various programs within the Eagleton Institute of Politics along with special guests from gubernatorial campaigns past and present to help us understand what to watch, how to watch it, and how to participate. We also hope to take a field trip or two to see the campaigns and/or a debate up close. With any luck, perhaps we will meet the candidates along the way.
01:090:101 section 84 index 10761

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 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.
01:090:101 section 87 index 10763

Looking for America on the New Jersey Turnpike
Michael Smart (Planning and Public Policy)
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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.
01:090:101 section 68 index 10756

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.
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Kecile Ralph (Planning and Public Policy)
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01:090:101 section 80 index 09676
Language Games and Talking Heads
Karim Stromswold (Psychology)
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 60 index 08612
Experiencing 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 10172
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 statistical 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 well-being, and long-term career development.

01:090:101 section 89 index 13521

Biodiversity and Global Health
Diane Adams (Marine and Coastal Sciences)

Building on the successes of the Millennium Development Goals, the world is now challenging itself to continue to improve people’s lives now and in the future with the Sustainable Development Goals. We will discuss and debate the role of environmental sustainability in maintaining and improving human health. Can we prevent malnutrition without razing our forests? Will the most sustainable cures come from the lab or the sea? We will explore the tensions and synergies between biodiversity conservation and global health using examples from around the developing world. Seminar includes a field trip to the United Nations.

11:090:101 section 04 index 16158
The One Health Initiative: Celebrating (The First Official) Decade of Discovery
Gloria Bachmann (Obstetrics, Gynecology and Reproductive Sciences)
Sona Jasani (Obstetrics, Gynecology and Reproductive Sciences)

The health of humans is connected and dependent upon the health of animals and the environment. This interconnected health tryst of human, animal, and environment comprises the basic fundamental structure of the One Health Initiative, which promotes interdisciplinary collaboration between physicians, veterinarians, ecological sciences, public health and the basic sciences to promote wellbeing. Through the origins of One Health have been identified in the writings of Hippocrates, it was not until 2006 that this idea was formally promoted to use as a global integrative health strategy. Since this time, various institutions including the Centers for Disease Control and Prevention, the U.S National Environmental Health Association, the American Medical Association, the American Veterinary Medical Association and the American Association of Public Health Physicians have endorsed this concept. Over the last decade, the One Health Initiative has led to many discoveries in science, policy and medicine. Through this course, students will be introduced to the principles of One Health and discuss the application of this multidisciplinary approach to better understand the intersection between animals, humans, and the environment with respect to science, research, and health.

01:090:101 section 79 index 09944
Permaculture: Enabling Change for a Regenerative Future
Anita Bakshi (Landscape Architecture)

Permaculture involves creating integrated systems of food production, housing, sustainable technologies, and community development. Originally conceptualized as an approach to creating permanent agriculture, the permaculture movement has developed into a whole systems approach with concepts that can be applied to social, cultural, and economic systems. Permaculturists today include not only farmers, but also community organizers, social workers, and software developers. Beyond food systems and ecological design, permaculture principles can be used to rethink the built environment, business models, and decision-making processes. Seminar sessions will include: lectures and documentary films about inspiring permaculture projects from around the world; class exercises that will help you feel empowered to make change; and short skill sessions. You will learn to apply small-scale interventions: use cardboard and old newspaper to sheet mulch, calculate rainfall on your roof and find ways to collect it, find healthy wild food and medicine, set up a currency-free barter market, and begin to compost—even if you have only the space under your kitchen sink to do it.

11:090:101 section 03 index 06633
The Doctor Is In: Malevolent and Magnificent Microbes
Joan Bennett (Plant Biology and Pathology; Associate Vice President for Promotion of Women in Science, Engineering, and Mathematics)

Microbes are organisms 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 sewage treatment. Students will also examine microbial diseases in human history, including plagues, syphilis, and tuberculosis.

11:090:101 section 02 index 07161
Euler, Godel, Cantor and Gauss: The Cool Math You Never Learned in School

Gyan Banhol (Molecular Biology and Biochemistry; Physics)

The pleasures of mathematics are easy to explain and the theorems that are based on them are easy to prove. Unfortunately, most high school and college math courses do not teach them. In this seminar, we will learn about some of the greatest of these ideas and results, from Cantor’s calculus of infinities to Euler’s proof that there are only five perfect solids to Goddard’s incompleteness theorem. The topics will introduce ideas from diverse areas of mathematics and the way they can be applied to solve problems of practical importance, such as how properties of prime numbers are used in encryption, the connection between graph theory and the four color problem, the theory of games and the emergence of cooperation, etc. Topics will be chosen from Topology, Logic, Number Theory, Game Theory and Analysis. Each lecture will be self-contained and accessible to anyone who can add, subtract, divide and multiply.

Invisible Galaxies: How Microbial Life Shapes Our Planet and Inspires Frontier Science

Kay Bidle (Marine and Costal Sciences)

We live on an ancient, wet, microbial planet. The oceans are Earth’s most prominent feature, covering nearly 70% of its surface area and teeming with more than 10 million marine microbes in every drop of seawater—a vast and virtual “microbial galaxy,” with their evolutionary history dating back to the origin of life itself. These organisms, which include diverse representatives of phytoplankton, protists, bacteria, archaea, and viruses, are invisible to the naked eye, yet they dominate the abundance, diversity and metabolic activity of oceanic ecosystems and have shaped the world as we know it. This seminar will explore microbial life in an earth systems context. Students will discuss a range of diverse topics, which span their impact on Earth’s geological, chemical, and biological history, their role as critical first responders to climate change, how they are central in our search for extraterrestrial life, and how they inspire the interface between art and science.

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.

Big Data: Revolution and Reality

Javier Cabrera (Statistics)

Ryan Womack (Rutgers Libraries)

Talk of Big Data is ubiquitous, but what does this mean in practical? 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, ensuring 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.

Exploring 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, matching 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 Gunnar Isac. 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.

Eliminating Cancer: Novel Targets and Therapeutic Approaches

Sunil 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.

Talk of Big Data is ubiquitous, but what does this mean in practical? 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, ensuring 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.

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01:090:101 section 01 index 06632
01:090:101 section 45 index 07163
01:090:101 section 15 index 06134
01:090:101 section 12 index 10747
01:090:101 section 12 index 10747
01:090:101 section 01 index 06632
Cells Have Feet and Sticky Fingers: The Discovery of Adhesion Molecules

Ramssy Foty (RJW-Surgery)
Beatrice Haimovich (RJW-Surgery)

Tissue engineering requires a basic understanding of how cells interact with one another to form organs. In this seminar students will learn about two families of adhesion molecules: integrins and cadherins. Integrins function as sticky feet, anchoring cells to surfaces. Cadherins, on the other hand, form sticky fingers, which mediate cell-to-cell interaction. We will discuss the guiding principles of each family, provide examples of how family members function in various cell types, and examine their role in several biologic processes. We will learn about molecular and biological mechanisms that populations of cells use to rearrange themselves into well-ordered structures. Finally, we will come to understand how this knowledge can be applied to generate artificial bioengineered tissues.

01:090:101 section 18 index 06136

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 our understanding 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 06142

Killer Asteroids, Comets, and Impact Craters

Juliane Gross (Earth and Planetary Sciences)
Jim Wright (Earth and Planetary Sciences)

Killer asteroids, comets, and their collisions with Earth have destructive effects on planets, fauna and flora. Impact cratering is a fundamental geologic process that has affected all bodies within the Solar System, and the collision of new information. Others spend very little on these topics. Some cities have adopted housing policies that encourage residential segregation, while others have worked to integrate neighborhoods. What are the implications of these policy differences for people living within these cities? To what extent do these cities offer each other lessons about how to improve population health? Can a comparison of these political and cultural insights into the consequences of different national health policies? We will investigate these questions by reading studies by economists, demographers, geographers, urban health policy experts and urban planners. We will explore how studies in each of these disciplines and fields helps to improve our understanding of cities and how to improve the lives of city residents.

01:090:101 section 55 index 12013

Traditional Organic Food and Farming Systems

Joseph Heckman (Plant Biology and 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 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 09669

World Cities: Neighborhoods, Health Systems and Population Health

Michael Gusmano (Health Systems and Policy)
Jeannette Rogowski (Health Systems and Policy)

Large cities are often associated with overcrowding, high rates of crime, economic inequalities and poor health. Are these conditions inevitable or can national and local policies improve the lives of city residents? In this seminar we will compare the health and health care systems of large cities around the world to better understand whether it is possible to improve public health and overcome health and health care inequalities, including inequalities among city neighborhoods. The largest cities in the world, including Hong Kong, London, Paris, New Delhi, New York, Sao Paulo, Shanghai and Tokyo, share many features in common. The populations of these cities include some of the wealthiest, and some of the poorest residents in their respective nations. The cities are centers of technology, including health care technology, and are homes to great academic medical centers. Despite these similarities, the cities we will examine exist within very different national contexts. Some of the countries in which these cities exist spend a great deal of money on public health and health care. Others spend very little on these topics. Some cities have adopted housing policies that encourage residential segregation, while others have worked to integrate neighborhoods. What are the implications of these policy differences for people living within these cities? To what extent do these cities offer each other lessons about how to improve population health? Can a comparison of these political and cultural insights into the consequences of different national health policies? We will investigate these questions by reading studies by economists, demographers, geographers, urban health policy experts and urban planners. We will explore how studies in each of these disciplines and fields helps to improve our understanding of cities and how to improve the lives of city residents.

11:090:101 section 16 index 20874

Complementarism: A Science-Based Philosophical Framework for Integrating Irreconcilable Opposites

Sunghul Ji (Pharmacology and Toxicology)

Complementarism is the philosophical framework constructed on the basis of the postulate that the principle of complementarity formulated by Niels 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 tridimensional relations exist in the philosophy of Lo-Tao (64-48 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.

11:090:101 section 40 index 06147

Jersey Shore and Estuary Environments

Michael Kenisch (Marine and Coastal Sciences)

This course will examine the environmental characteristics of shore and estuary environments in New Jersey, including the physical, chemical, and biological aspects of these systems. Some of the topics that will be covered include nearshore ocean waters, beaches, dunes, back bays, estuaries, biotic communities, pollution, water quality, human use and impacts, climate change effects, coastal storms, recreational and commercial value, as well as management and policy elements. The focus will be primarily on New Jersey estuaries. Newark Bay, Raritan Bay, Barnegat Bay, Little Egg Harbor Estuary, Mullica River-Great Bay Estuary, coastal lagoons from Asafo to Cape May, and the Delaware Estuary and Bay.

11:090:101 section 07 index 16160

Getting It Done: Managing Information for Better Performance

Triveni Kuchi (Rutgers Libraries)

With emerging information and communication technologies, the proliferation of information constantly generated is overwhelming. Such an information environment directly affects the way you discover, keep, use, or re-use information for your research. How do you manage your database files? What organizing schemes or strategies for managing information are out there? What works, what doesn’t, and why? This seminar will focus on understanding what information management entails; and how it requires an active, deliberative selection among alternatives, and a critical and habitual pursuit of analyzing and re-categorizing information. Through readings, class discussions, hands-on labs, and guest speakers, students will reflect, analyze, compare and use information organizing schemes or tools for managing a variety of different types of information. Students will creatively explore particular information management tools that are used at either the organizational or individual level in more depth. Upon completion of this seminar, students will become savvy information managers, and gain important critical thinking skills broadly applicable for their study, research, jobs and careers.

01:090:101 section 52 index 06150

Politics of Global Health

Daniel Hoffman (Nutritional Sciences)

Why do some people live longer than others? Is being tall due to genetics or economics? Why are undernutrition and HIB such problems in parts of Africa, but not Latin America? Human health is influenced by a number of factors, such as diet, environment, and personal choices, as well as politics. Simply, there are many complex factors, such as income, education, and country of residence, that also influence health. This seminar will explore how broader issues in politics and economics play central roles in allowing a person to have optimal health or not. Through readings, discussions, and interactive programs at the New Jersey Institute for Food, Nutrition, and Health, a site for interdisciplinary research, students will explore many aspects of global human health. Specific issues to be covered include obesity, infectious diseases, untoxification, and HIV as case studies in different political-economic situations. The objective of the seminar is for students to gain a deeper appreciation of the complexities involved in global health.

11:090:101 section 07 index 16160

Flying Faster Than the Speed of Sound

Doyle Knight (Mechanical and Aerospace Engineering)

On October 14, 1947, the sound barrier was broken for the first time in a manned level flight in the Bell X-1 piloted by Chuck Yeager. This remarkable achievement, due to the efforts of many engineers and scientists, marked the beginning of the age of supersonic aircraft. This seminar will examine the contributions of many of this era’s pioneers, including Ackerley, Bussaman, Prandtl, Tupolev and many others. The crucial role of the development of turbojet and turbofan propulsion systems will be reviewed. Both U.S., European, and Soviet Union (now Russian Federation) aircraft will be considered. The seminar will be arranged with a visit to the Smithsonian Air and Space Museum in Washington, D.C.

01:090:101 section 72 index 09688

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11:090:101 section 04 index 06147

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11:090:101 section 07 index 16160
The Harvest Garden: Creating an Edible Landscape on Campus
Arianna Lindberg (Landscape Architecture)
Holly Grace Nelson (Landscape Architecture)
Collaborate with Rutgers Landscape Architecture students to create an edible landscape for chefs at the Harvest Cafe at Rutgers’ new Institute of Food, Nutrition and Health. The Cafe’s mission is to “source local, sustainable, whole foods and artisan products that are raised and produced responsibly,” with a grain- and plant-centric menu that promotes healthy eating. We will learn how the chefs’ ideas for a new kitchen garden were envisioned by a landscape architecture studio in spring 2017. Students from the studio will present their projects and will participate in a discussion of the garden design process. Participants in the seminar, in conjunction with other partners (including Harvest Chefs and the SEBS Diian of Students), will then select a design for the kitchen garden. Following the selection process, we will prepare the soil, organize and quantity plantings. We will then lay out the plants according to the design and plant the garden over the course of the next few classes. The course will culminate with a meal prepared by Harvest chefs using ingredients harvested together from the new garden and Student Farm. The seminar will explore ethnobotany, plant-based diets, soil fertility and planting design. Students will also learn about the work of the Student Farm on campus and its role in the local community, and we will have the opportunity to visit our organically managed farm sites.
11:00/101 section 05 index 16159
Plastics in the Modern World
Jennifer Lynch-Banzoli (Materials Science and Engineering)
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 plastics! The use of plastics has been increasing by about ten percent per year over the past three decades, due to its benefits and unique properties. In this seminar, we will explore how plastic parts are made and recycled. We will also explore how lightweight, stiff, strong plastic composites are made and provide benefits over traditional heavy material. Plastics are the answer for many modern needs, from bridges, cars, planes, and armor. Students will have hands-on experiences making plastic parts in the lab using different techniques (injection molding, 3-D printing) and learning how plastic parts are tested.
11:00/101 section 71 index 09687
Climate Change: Identifying Solutions Through Supply Chain Archaeology
Kevin Lyons (Supply Chain Management and Marketing Science)
Supply chain management and archaeology are two academic disciplines that are beginning to collaborate. In the past several years, there has been an outburst of 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 source to end-user (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 overall waste. We will conduct in-class and virtual archaeological digs at waste and dumspies globally to look for climate impacts while identifying new eco-product design solutions.
11:00/101 section 57 index 10574
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 allergies and the role they play in the context of food safety.
11:00/101 section 08 index 16161
Paper-based Electronics and Art
Aaron Mazzeo (Mechanical and Aerospace Engineering)
Paper is an ideal medium for folding (origami), cuttting, embossing, casting, and painting. Combine these attributes with electronic components on one or within paper, and there are some interesting possibilities 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 laboratory to build semi-autonomous electronic systems that they will design while keeping in mind aesthetics and artful creativity.
11:00/101 section 86 index 15520
The Health Care Executive
Michael McDonough (Health Services Administration)
Today, the American healthcare system is the subject of passionate debate and is changing more rapidly than almost any other field. The field is changing in terms of how and where care is delivered, who is providing those services, and how that care is financed. As a result of the transformation taking place, career options for healthcare executives are becoming more diverse. Healthcare executives work in a variety of settings, including hospitals, healthcare integrator systems, managed care organizations, long-term care facilities, home health agencies, and consulting firms, to name a few. These executives are the ones managing this changing field, in the hospitals, and have an opportunity to make a significant impact in improving the health of the communities served by their organizations. In this seminar, we will explore the healthcare field. You will learn how and where healthcare services are delivered, who provides those services, and how to pay for them.
Earthquake Resistant Structures: Shake Table Testing of 6-Story Balsa Building Under Simulated Earthquake Ground Motions

Husam Najm (Civil and Environmental Engineering)

Are you intrigued by earthquakes? Are you curious about learning why some buildings collapse during an earthquake while others don’t? In this seminar we will learn about earthquakes and earthquake engineering, their history, their effect on buildings and bridges and on human life. We will explore the basics of structural engineering, structural materials that can best resist earthquake shaking, and what factors contribute to a safe design of buildings in seismic zones. This seminar/project will include two activities: 1) designing and constructing a 6-story building structure made of balsa wood to test ground shaking. The structure will be about 5 ft high and will be placed on a 1-in-1000 shaker that will shake the structure simulating an earthquake event; 2) testing the balsa structure under various earthquake motions generated by the shaker, and 3) record the acceleration of each structure and compare the performance of the structures.

01:090:101 section 98 index 11114

How to Win a Nobel Prize and the Ethics of Winning a Nobel

George Piecznik (Biochemistry and Microbiology)

The professor teaching this course worked with all the pioneering Nobel laureates of Molecular Biology. He published with Francis Crick, co-discoverer of the structure of DNA, and with Nobel laureate Sydney Brenner, who discovered mRNA. In this seminar, students will learn about the Bragg equation and simplify it so they can use it to decipher Photo St. Students will measure parameters from Photo St and then re-derive the structure of DNA. An exciting hands on component of the class will include a lab exercise where students use laser diffraction to determine helical molecular structure. Students will also learn the logic of how Fred Sanger, who received two Nobel prizes, created his RNA and DNA sequencing systems. This changed the whole landscape of science and medicine forever.

11:090:101 section 26 index 13525

The Self and Its Disorders

Louis Sass (Clinical Psychology)

This seminar will be introduced to current thinking about several promising new areas of research and treatment involving the self or sense of identity: narcissistic, borderline, schizoid, and schizotypic 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 cognitive-behavioral, and existential psychology. We will pay special attention to the perspective of the suffering individual, the possible cognitive-behavioral, and existential psychology.

01:090:101 section 46 index 12012

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 09871

The Universe: What We Know and What We Don’t

Stephen Schneider (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.

01:090:101 section 83 index 10760

Kids and Medicine

Pooja Shah (Pharmacy Practice and Administration)

Katie Kinler (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 10764

The Rutgers Energy System

Rachael Shwom (Human Ecology)

Now that you are part of the Rutgers community, you are part of a new energy system! This seminar will be an exploration of the production and consumption of energy on Rutgers New Brunswick campus. Students will learn about the engineering and societal dimensions of energy production and consumption at Rutgers New Brunswick through site visits and readings. Site visits will include the new geothermal bore field at the Business school, a tour of the cogenration plant on Busch Campus, the Livingston solar installation, and the Honors College Building that has a Leadership in Energy and Environmental Design (LEED) Silver certification. Students will also learn about transportation energy use, as Rutgers operates the second largest public transportation system in New Jersey. Finally, students will investigate their own energy use at Rutgers, and as a class, we will develop an energy conservation effort that we will then implement and measure savings together.

11:090:101 section 20 index 12014

Cancer: Can It Be Prevented?

Nanjoo Suh (Chemical Biology; Ernest Mario School of Pharmacy)

This seminar introduces students to the field of cancer research, factors that contribute to the development of cancer and strategies for cancer prevention. Almost 15 million people are diagnosed with cancer each year in the United States. We all know someone among our family members, friends or colleagues who suffer from this disease. Can cancer be prevented? Although heritable genetic traits play an important role in the development of cancer, more than half of cancer deaths are related to preventable factors, such as smoking, infection, nutrition, obesity, or physical inactivity. During this seminar, students will learn basic concepts in cancer research, review cancer epidemiological data, and design possible laboratory cancer prevention studies. We will also discuss the applicability of results from experimental studies to everyday life and review recommendations for cancer prevention provided by the World Health Organization and American Cancer Society.

01:090:101 section 81 index 20410

Pots and Parasites: The Role of Nature

Michael Sukhdeo (Ecology, Evolution, and Natural Resources)

It is now recognized that parasitism as a feeding strategy is a natural force in nature, much like predation or herbivory. Nevertheless, we still think of parasites in terms of the diseases they cause in humans, in our pets and in our domestic animals. Over the last decade, there have been many studies putting parasites into the context of community effects in ecosystems, and these new ideas have altered our thinking on the treatment of parasites. This course will focus on parasites of our pets and wildlife. There will be field trips to domestic animal farms, and also to ponds and streams to collect parasites. Samples will be returned to hands-on labs where the students will learn standard parasitological techniques in worm recovery and identification, including necropsies and fecal analysis. Short mini-leagues will be used to elucidate new ideas on parasites in the context of natural systems and their basic biology.

11:090:101 section 14 index 10075

The 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 ultrapure glass form the basis of the internet. In this seminar we will 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 conclude with a demonstration of glass blowing and pouring at the Rutgers-Corning glass laboratory.

01:090:101 section 93 index 10788

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01:090:101 section 93 index 10788
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 Research 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 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 expose students to the activities of research—from building robotics to collecting specimens in the field to working through an archive. Professors leading these courses then offer an Aresty research project for the next year, and select students from the seminar as research assistants.

Medicinal Plants: The Science of Discovery
Mary Bridgeman (Pharmacy Practice and Administration)
Lena Struwe (Ecology, Evolution, and Natural Resources)

Plants have been utilized since ancient times in an attempt to cure disease and relieve suffering. Pharmacognosy, a branch of medical science devoted to drug plant history, selection, identification, and study, remains an alive and flourishing area of research in our modern medical world. Do plants, as medicinal agents, have a role in modern healthcare? The seminar will explore the complexities of this question and will provide students an opportunity to hear various perspectives from clinicians and scientists to help formulate an opinion. Activities will include a research trip to the Alexander Library to review ancient texts on the use of plants as medicines, a field trip to a medicinal marijuana dispensary to view the state-of-the-art of delivery of this controlled substance, blogging, and in-class discussions focused on the multiple dimensions to consider regarding use of herbals and natural remedies in medical care.

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.

Data Mining in the Humanities
Francesca Giannetti (Rutgers 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.
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.

**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. As the United States witnessed Mandela’s rise to power, so did South Africa experience a peaceful transition. In this seminar, we will explore the socio-cultural, political, and economic factors that led to 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.

**Artificial Intelligence and Deep Learning: Hype, Hope, or Both?**
Casimir Kulikowski (Computer Science)

Today there is endless hype about how artificial intelligence (AI) is going to transform the world—from self-driving cars, truly personalized mobile assistants, robots in the home and work environment, or from the supermarket check-out to space travel. Big Data and Deep Learning are promising revolutionary discoveries in biomedicine, the geophysical, chemical, and life sciences, and all kinds of human-machine technological advances. But are they really up to the job—or is this yet another AI Spring, to be followed by yet another AI Winter, as the overblown hype slowly fades away? Or, are we reaching a turning point in human evolution, when our thinking and working is merged with machine learning and thinking that we can trust? How is OUR real life likely to be affected and even transformed by these technologies? We will explore these questions and more as we separate current fact from futuristic hope. Through this seminar we will consider both the achievements of AI and the limitations of these technologies from the philosophical, psychological, cognitive and social perspectives of how they operate in society, fueling our wildest dreams, yet also our most scary nightmares!

**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.
The Poetry of Astronomy
Andrew Baker (Physics & Astronomy)
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 researcher 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.

Dreams of (Human) Machines
Nicola Behrmann (German)

This seminar examines the role of machines and automatons in regard to the modernist crisis of representation, the fantasy of artificial recreation, and the connection between art and life. We will investigate the way in which Friedrich Nietzsche’s typewriter influenced his writing, accompany Rainer Maria Rilke’s Malte Laurids Brigge on its visit to the Salpêtrière hospital in Paris (excerpts), read Franz Kafka’s horror story “In the Penal Colony,” travel to the Philadelphia Museum of Art to see Marcel Duchamp’s famous installation The Bride Stripped Bare by Her Bachelors, Even (The Large Glass), try to make sense of Dadaist poems and André Breton’s Surrealist concept of “automatic writing,” and watch Fritz Lang’s famous silent movie Metropolis (1927) and Ridley Scott’s Blade Runner (1982).

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—it’s 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 seminar, 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.

The Same Old Song: Influence and Allusion in Popular Music
Christopher Doll (Music)

Is all pop music really the same? Are rock musicians more original than their pop counterparts? And what about hip hop—is sampling theft, or does it have artistic merit? These and other questions will guide us as we focus on musical and lyrical details that raise issues of influence and allusion between songs from all over the popular-music repertory. We will listen to artists such as Ray Charles, Elvis, The Beatles, Jimi Hendrix, James Brown, Led Zeppelin, Bob Marley, Michael Jackson, Madonna, Public Enemy, Beastie Boys, Björk, Radiohead, Danger Mouse, Lady Gaga, and Bruno Mars. We will also watch musically intertextual films such as The Rocky Horror Picture Show, This Is Spinal Tap, and The Royal Tenenbaums.

Clandestine Africa
Barbara Cooper (History)

What makes West Africa tick? Most observers agree that the black market plays a major role in economic, social, and political life. We will begin with contemporary debates about modern slavery in Niger by considering a number of intriguing court cases. Having learned something about the economic, political and cultural entanglements involved in any hidden trade, we will then turn to consider traffic in information and ideas as they spread on social media and the internet. We will explore the realm of rumor, conspiracy theory, and the occult. Is there a market for human organs, babies, blood, or magic substances? Is it possible to buy nuclear grade uranium to build a bomb? Can votes be purchased? Students will explore a topic of particular interest (e.g. small arms, drugs real and fake, human trafficking, unlocked iPhones), and use both academic and popular sources in order to present something interesting about “hidden trade” in West Africa.

Identity, Self-Discovery, and the Arts
Jenevieve DeLosSantos
(Rutgers Early College Humanities Program)

Whether written, performed, or performed, art has long been a creative outlet for the telling of personal narratives. This interdisciplinary seminar will examine key artists who used their craft to fashion and work through the understanding of their own identity. Arranged thematically, the course will explore how artists mediate ethnic identity, personal trauma, gender politics, life transitions, and coming-of-age through their art. Topics will include artists such as Vincent van Gogh and Frida Kahlo, literary selections like Junot Díaz’s “Drown,” confessional poetry, as well as contemporary popular culture, like Lin Manuel-Miranda’s Broadway hits Hamilton and Lin Manuel-Miranda’s Broadway hits Hamilton.

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Vampirism: History of the Modern Myth
E. Elle (Comparative Literature; AMESALL)
Charles Hâberli (Chair, 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, reading, romantic poetry and tales, we will investigate the social, historical, and philosophical implications of the rise of the blood-sucking monster. Those various contexts will enrich our discussions when we address vampirism in contemporary film and popular culture at the end of the seminar.

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.

Celebrity and Photography: An Exhibition Seminar at the Zimmerli Art Museum
Donna Gustafson (Zimmerli Art Museum)
Photography has been used as a vehicle for celebrity from the moment of its invention in the 19th century. This seminar will explore the relationship between photography and celebrity and give students an opportunity to curate an exhibition of photographs from the collection of the Zimmerli Art Museum. Designed as an exhibition seminar for undergraduates, the class will result in an exhibition planned and curated by students in the seminar. Students will learn about celebrities and photography, conduct curatorial research, write labels and exhibition texts, and help to plan the installation of the exhibition. Class trips will include a visit to a photographic studio for demonstrations in film and digital photography. There will also be opportunities for students to continue working on the project after the seminar concludes as a curatorial intern at the museum.

100 Years of Butterfly
Allan Isaac (American Studies)
The “Butterfly” story of a self-sacrificing Asian woman has been told and retold for more than a hundred years. This seminar will trace the evolution and challenges to the Butterfly narrative from John Luther Long’s short story (1898) and Puccini’s opera (1904) to Miss Saigon (1989) and David Henry Hwang’s M Butterfly (1988) to look at issues of race, empire, gender, and sexuality.

Seoul Music: Historic and New Voices of Korea
Min Kwon (Music)
The folk music of Korea celebrates a tradition that stretches back over 1500 years and is a remarkable reflection of the history of fascinating Korean culture. Though these art forms continue to thrive in traditional arrangements, modern performers and composers draw inspiration from the enormous body of folk songs and often adapt them to modern instruments to present them in a new light. Transcriptions of these pieces offer performers opportunities to blend a variety of musical styles and adapt the classic melodies to their own expression. There will be live performances and demonstrations of Korean traditional instruments, as well as Korean inspired pieces on modern instruments by Rutgers Mason Gross students. The class will culminate with a field trip to the Korean Cultural Center in NYC and an attendance of a special concert. Open to students of all nationalities and backgrounds.

The Book: Digital, Edible, and as Art
Megan Lotts (Rutgers 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 Brooklyn Center, MoMA, and more. Topics explored throughout this course will include Artist Books, Graphic Novels, E-Books, and the world of self-publishing.

The “Problem of Evil” in Philosophy, Literature, and Film
Trip McCrossin (Philosophy)
What do we mean when we say someone has “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 20th-century literature and film.

Unmapping America Through Native American Narratives and Film
Angela Mullis (Director, Byrne Seminars)
Since the beginning of the Native American Renaissance in the 1960s, Native American 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 Native Americans. 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.
Our Threatened Planet: Ecology in Film
Fatima Nasjli (German)
In this seminar, we will view several documentary films on the threatened state of the earth’s environment. The subject was popularized by Al Gore’s An Inconvenient Truth (part of which will be included in the course), but we will focus on three Austrian films released in 2004/2005. What is the unique perspective of artists who come from a small European country that is very concerned with environmental issues? We will read blogs and magazine articles that discuss the interplay between reality and the images in these films. We will also compare American versus European narratives of environmental damage, in relation to their respective political and economic circumstances.

Looking East: A Different Way of Learning Dance, Language, Traditional Arts and Cultures Through Movement
Paul Ocampo (Dance)
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 is fun, interactive and informative. This seminar is designed for students who want to expand their understanding 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 intrinsics 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 currency of the spiritual principles addressed by this allegorical quest?

Dracula: Bloodthirsty Tyrant or Great Ruler? Pictures, Pamphlets, Legends
Stephen Reineirt (History)
The historical Wallachian prince Vlad III Dracula (1448–1456–1462-1476) was not viewed by his contemporaries as the elegant, aristocratic vampire depicted in the iconic performances of Bela Lugosi on stage and in film. Contemporaries indeed had their views about Vlad, and these were shaped and developed in quite remarkable ways from the mid-1460s into the 17th century. But a vampire he was not! In Germany and western Europe, Dracula comes to be typecast as the most evil, bloodthirsty tyrant ever known in the annals of human history. But in both eastern and, especially those of Greeks at the court of the Ottoman sultan Mehmed “The Conqueror,” and Russians in the retinue of Grand Prince Ivan IV “the Terrible,” Vlad Dracula was indeed harsh, but his violence and brutality had a moral dimension which elevated him to the stature of a “great ruler.” In this course we will research how these competing narratives evolved and carefully identify the evidence we have at our disposal to understand these evolutions—ranging from early printed pamphlets, to portraits and cryptoportraits, to humanist histories, to post-Byzantine and Ottoman historical texts, to old Slavic tales and legends. Our focus on the early printed pamphlet will involve a field trip to the Rosenbach Museum in Philadelphia to study up close the earliest German pamphlet vilifying Prince Dracula, and explore the nature of the earliest printed books and how they survive to the present.

Who Needs Music?! Is music an essential part of life? Is it really necessary? History, both ancient and modern, suggests that humans can’t live without it, and that it has been with us since the earliest days of our existence. The present 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 so affected by it. The last day for the seminar will be Daniel J. Levitin’s provocative This is Your Brain on Music: The Science of a Human Obsession. And our final class will be devoted to an intensive analysis of Lady Gaga’s “Bad Romance.” We go from there.

Evil on the Screen: Cinematic Representation of Adolf Hitler
Alexander Pichugin (German Language and Culture Studies)
This seminar is open to any student interested in history, politics, and the cinema. It introduces students to the cinematic representation of one of the most infamous figures of the 20th century, Adolf Hitler, the leader of the National Socialist German Workers Party and Chancellor of Nazi Germany from 1933 to 1945. Hitler has been represented in cinema from his early years as Farmer. His representations range from portraits aiming at historical accuracy, to caricatures, to pure imaginative creations. The list of films and the historical context in which they were made are fascinating: Since the end of World War II, representations of Hitler have been viewed as a historical figure and his role in the establishment of the Nazi regime. The main part of the seminar will be devoted to in-depth analyses of selected films representing Hitler, focusing on different cinematic aspects of representation as well as on different functions the image of Hitler fulfills in different films. By studying different films representing Hitler, students will gain insights into a broader context of ideas and discourses that have shaped contemporary culture. The different films will be approached as both cultural artifacts and cinematic documents. We will explore various interpretative techniques (iconic analysis, semiotic interpretation, shot-by-shot analysis) and learn to define and apply essential film terminology.

Culture Games: What Do Major Sporting Events Tell Us About Culture and Society Over the Past Decade?
Mark Schuster (American Studies; Dean for Graduate Student Life)
Sport is a dynamic core institution in higher education and society. Although the last decade has shown drastic improvement since Title IX in both college and professional sports, the terrain is still patriarchal and imperialistically controlled by mostly white, hetero sexual men. The course will critically examine the corporations (NCAA) and media that make profits from college athletics, including the institutions themselves. There will be particular focus on Division I, the Big 10, and the ethics of how we engage, use, and monitor our student athletes. Will the academy, rather than economics, be a catalyst in changing the culture of violence and injury on and off the field? Most importantly, does the excitement, profit and gains of college sports outweigh the collateral damage to student/athlete’s development and the integrity of the institutions that recruit them?

Artists Studio Visits in New York City
Benjamin Paul (Art History)
This seminar will visit established artists in their studios in New York City, Brooklyn, and Queens. We will meet the artists and talk with them about their work, their career paths and choices, and what it means to be an artist in the 21st century. The seminar’s aim is to provide first-hand insights into the art world and is especially recommended for aspiring artists or critics.
What is so Public About Our Streets?

Jayan Ayala (Planning and Public Policy)

Streets are our most public image of a city. Yet, in our daily routine as we navigate through them, we often do not think about how the design of these public places draws us into private properties to shop, play, exercise, reside, work, and find entertainment. In this seminar, students will learn how visual cues in our environment help us understand the extent of the public realm (our streets), and how it is designed to shape our way of life. In the past ten years, NYC expanded its perception of the public realm into landmark buildings with the intent of encouraging physical health, promoting entertainment, stimulating commerce, and activating land uses. We will travel to NYC so students can experience and document their interpretation of how an environment reads. Some of the places we may explore are the High Line, Lincoln Center, Bard College, Time Warner Building, The New York Times Building, The Cube, NYC Library, Battery Park City, other up and coming landmarks, and major avenues. We will use photo-simulations and 3D models to provoke discussion and describe the technical and legal aspects of the pedestrian realm. Ultimately, we want to understand just how much design and collaboration between private and public land goes into creating these appealing environments.

Secrecy, Transparency, and (In)Visibility

Jack Bratich (Journalism & Media Studies)

Craig Scott (Communication)

In revolutionary and contemporary periods, we repeatedly find the presence of secrecy. 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 technical and legal aspects of the pedestrian realm. Ultimately, we want to understand just how much design and collaboration between private and public land goes into creating these appealing environments.

The Power of One: Understanding Resilience and Relationships

Caroline Claus-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,” adapt 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.

Mama Mia! Conceptions and Constructions of Motherhood

Laura Curran (Social Work)

Shari Munch (Social Work)

Mama, Ma, Mommy, Mother: few words can evoke so many 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, emotional, and economic circumstances.

Twin Towers: Memory and the Meaning of September 11

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. In this seminar 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)

This seminar will examine the role various religions, such as Confucianism, Hinduism, Christianity, and Islam, have played in the origination of political order and 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, patrimonialism, bureaucracy, rule of law, and the relationship between church and state, contextualized in their historical background. This will help us better appreciate the contingency and vulnerability of a variety of modern political norms.

Sound Mind, Sound Body: The Last 50 Years of Intercollegiate Athletics

Carl Kirschen (Spanish and Portuguese)

The world of intercollegiate athletics has changed dramatically from the days of no-gononal competitions without media coverage to the present naturally involving millions of viewers. 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.

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 consumer waste. Supply chain management involves the movement of man-made materials as they flow from their source to end-users (consumers). 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 dumps globally to look for climate impacts while identifying new eco-product design solutions.

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 grantmanship, 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 Story of Mandarin, China’s National Language

Richard V. Simmons (Asian Languages and Cultures)

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 the 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 all the various other forms of written and spoken Chinese, including Classical Chinese and the Chinese dialects. No knowledge of Mandarin is needed to take this seminar, only the desire to know more about this fascinating language.

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 or different from DSM IV criteria for addictive behaviors such as substance use, binge eating, gambling, or gaming. 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

Duke 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 changes that you will face? In this course, we will share our personal experiences and use statistical 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 academic achievement, social wellbeing, and long-term career development.

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FIRST-YEAR SEMINARS: SOCIAL SCIENCES 53
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 we get sick, and how 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 experiences and interactions with physicians, pharmacologists and biomedical scientists and engineers, to provide an overview of what might be the “next” frontier in medicine.

The One Health Initiative: Celebrating (The First Official) Decade of Discovery
Gloria Bachmann (Obstetrics, Gynecology and Reproductive Sciences)
Sona Jasani (Obstetrics, Gynecology and Reproductive Sciences)

The health of humans is connected and dependent upon the health of animals and the environment. This interconnected health triad of human, animal and environment comprises the basic fundamental structure of the One Health Initiative, which promotes interdisciplinary collaboration between physicians, veterinarians, ecological sciences, public health and the basic sciences to promote wellbeing. Though the origins of One Health have been identified in the writings of Hippocrates, it was not until 2006 that this idea was formally promoted to use as a global integrative health strategy. Since this time, various institutions including the Centers for Disease Control and Prevention, the U.S. National Environmental Health Association, the American Medical Association, the American Veterinary Medical Association and the American Association of Public Health Physicians have endorsed this concept. Over the last decade, the One Health Initiative has led to many discoveries in science, policy and medicine. Through this course, students will be introduced to the principles of One Health and discuss the application of this multidisciplinary approach to better understand the interaction between animals, humans and the environment with respect to science, research and health.

Data Science: The Good, The Bad, and the Ugly
Waheed Bajwa (Electrical and Computer Engineering)
Anand Sarwate (Electrical and Computer Engineering)

Data science is a hot field, and the term “machine learning” has moved into the popular culture. “Artificial intelligence” is no longer the subject of sci-fi movies alone; we regularly interact with “smart systems” which are powered by sophisticated learning and inference algorithms. There is no question that these systems have made great improvements in the efficiency of services and quality of life. On the flip side, the decisions made by machines reflect the biases (implicit or explicit) of their designers. The last ten years have truly been a “Decade of Discovery” in terms of advances in data collection and processing. But how can we navigate the potentials and pitfalls in the decades to come? In order to gain some critical perspective on these topics, people have to learn basic concepts of “data science” much like we understand basic concepts of biology, chemistry, and physics. In this course, students will learn what goes into these algorithms, how they work, and how design decisions can be reflected in the outputs. We will emphasize the fundamental questions that drive statistics, data science, and machine learning. By the end of the course, students should be able to use different perspectives (statistical, computational, social) to describe specific data-driven systems. Students will learn to do this through case studies on examples of machine learning and inference algorithms and will be exposed to topics of contemporary research, such as interpretability, fairness, bias, and privacy. Some examples will be drawn from the recent book Weapons of Math Destruction by Cathy O’Neil, which illustrates some of the dangers of machine learning. Others will come from more recent news and emerging work on Critical Data Studies.
Fighting the Fat: Do Obesity Treatments Work?  
Nicholas Bello (Animal Science)  
“Obesity” 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.

Collapse of Civilizations  
Kuang Yu Chen (Chemistry and Biological Chemistry)  
Throughout history, civilizations prospered and collapsed: Minos, Mayan, Angkor, and Paganum 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, GPPP (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 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.

Wars of the Future: Chemical and Biological Weapons  
Donald Gerecke (Pharmacology and Toxicology)  
In this seminar 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 biosafety challenges of anti-bioterror research.

Brunswick, Body and Bikes  
Julia Grimes (Rutgers–Newark Medical Education)  
Sue Shaptes (Nutritional Sciences)  
While many know that healthy living and physical activity plays an important role in the academic achievement of students, adjusting to life as a first-year college student can be challenging. Unfortunately, poor eating habits and decrease in physical activity is not uncommon. The objective of the seminar is to promote health and wellness by understanding nutrition and body composition to maintain proper body weight, lean body mass, and bone health. We will engage cycling because it is an effective low-impact way to stay fit and healthy by providing benefits such as increasing strength and endurance as well as decreasing fat. Furthermore, bike-friendly communities have higher levels of mental health and well being. In addition to recognizing cycling impact on recreational activities and transportation, cycling safety and skills and planning will be explored.

Science Fiction, Science Fact  
Juliane Gross (Earth and Planetary Sciences) and Charles Keeton (Faculty Director, Aresty Research Center; Physics and Astronomy)  
Aloha! Space ships! From War of the Worlds to Star Wars to The Martian, pop culture is full of wondrous ideas about what might be found beyond Earth. Just how far-fetched are they? In this seminar, we will examine the scientific underpinnings of many popular examples. We will introduce key concepts from astronomy, geology, and biology and use them to understand the search for life in the universe. We will then use some hands-on activities to consider what it would take for Martians to invade Earth—or vice versa. This course is appropriate for non-science majors; the only requirements are curiosity and willingness to engage with a little technical material.
Spinal Cord Injury and Stem Cells: Pushing the Frontiers, Raising the Ethical Questions

Martin Grumet, Patricia Monica, 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.

Flying Faster Than the Speed of Sound

Doyle Knight (Mechanical and Aerospace Engineering)

On October 14, 1947, the sound barrier was broken for the first time in a manned level flight in the Bell X-1 piloted by Chuck Yeager. This remarkable achievement, due to the efforts of many engineers and scientists, marked the beginning of the age of supersonic aircraft. The seminar will examine the contributions of many of this era’s pioneers, including Ackeret, Busemann, Prandtl, Tupolev and many others. The crucial role of the development of jet engines and the development of supersonic aircraft will be discussed. The seminar will conclude with a visit to the Smithsonian Air and Space Museum in Washington, D.C.

The Psychophysiology of Stress Management: How To Do It and Why It Works

Paul Lehrer (Psychiatry)

Students will be given an introduction to psychophysiological aspects of stress, and will learn a number of well validated techniques for managing stress more effectively in their own lives. They will get an introduction to the autonomic nervous system, how the sympathetic and parasympathetic systems are regulated, how they are affected by stress, and how stress management methods can help regulate them. Topics will include an introduction to homoeostasis and allostasis, deep muscle relaxation, hypnosis and self hypnosis, mindfulness, and cognitive restructuring. Students will learn to use each of these approaches in their own lives. They will take daily data on their own experiences in managing stress, and will write a short paper on stress management based on their own data.

Kitchen Chemistry and Food Physics

Richard Luderscher
(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 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.

Exploring the Deep Sea

Richard Lutz (Marine and Coastal Sciences)

Costantino Vetrini (Biochemistry and Microbiology)

The seminar will focus on past and present research conducted by Rutgers faculty and students, who have been at the forefront of exploration of a wide spectrum of deep-sea environments throughout the world’s oceans. The seminar will expose students to ecological and microbiological research conducted in the most extreme environments on the face of the planet (e.g., deep-sea hydrothermal vents with temperatures in excess of 700°F located at depths of 1–2 miles beneath the ocean surface), as well as to ongoing research at Rutgers aimed at the discovery of chemical compounds isolated from deep-sea vent organisms that may have pharmaceutical potential for curing certain types of cancer. Hands-on activities will include interactive exchanges between students and the professors focused on historical videos dating back to the initial biological expedition to deep-sea vents in 1979 and include an IMAX film entitled Vallesian of the Deep Sea that was co-produced by Rutgers University featuring Rutgers scientists and research efforts.

Energy, Carbon, and the Environment

Monica Mazurek (Civil and Environmental Engineering)

The seminar develops critical thinking and decision-making strategies for carbon-based energy sourcing. We will focus on standards of critical thinking and apply this to finding and evaluating information sources about energy consumption in the U.S. We will explore current and emerging alternative energy sources for transportation and electrical power. Students will assess their carbon consumption in their daily lives. We will look at case studies of carbon fuels and how alternative energy choices could be selected and applied as sustainable energy technologies that reduce global atmospheric carbon emissions. The larger aim is to enable students to develop critical thinking skills as current and future energy consumers.

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.

The Soul on Trial

Julien Musolino (Psychology)

Do human beings have a soul? Something that gives us free will, a moral compass, and is potentially capable of surviving the death of our physical self? A majority of people in the United States believe we do; and a wealth of popular books, articles, TV shows, and gurus of all stripes purport to have found convincing evidence for the existence of the soul. The current scientific consensus, however, flatly rejects any notion of “soul” or “spirit” as separate from the activity of the brain. Francis Crick, co-discoverer of the structure of DNA, explains: “You, your joys and your sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules.” In this seminar, we will explore these fascinating questions, reviewing evidence from biology, psychology, neuroscience, and the physical sciences. Should we give up our soul beliefs?

The Future is Solar: Meeting Worldwide Energy Demands With Sunlight and Other Clean Energy Sources

Robert Niederman (Molecular Biology and Biochemistry)

Because rising living standards are causing a dramatic increase in global energy consumption, the supply of secure, clean and sustainable energy is among the most important scientific and technical challenges facing humanity in the 21st century. Harnessing sunlight as a clean and renewable energy source is becoming increasingly important as an alternative to the widespread use of polluting fossil fuels as the overwhelming worldwide energy source. In this seminar, students will learn how an improved understanding of photosynthesis in simple organisms such as photosynthetic bacteria, can harness solar energy for a variety of applications such as solar-driven production of molecular hydrogen and other biodegradable biofuels, to the fabrication of bio-solar photoelectric cells. Other forms of clean and sustainable energy such as wind, wave, tidal and hydrothermal power will also be considered.
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. each year. The 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.

Interactive Engineering Education: Democratizing Research Opportunities Via Gamification
Jonathan Singer (Mechanical and Aerospace Engineering)
Research experience is universally recognized as the supernatural means of science education, but it is also the most costly. This seminar offers students the opportunity to participate in a pilot virtual research group (VRG) module. The VRG simulates investigation of a complex materials science module. Through their participation and feedback, students will be integral to developing the VRG module, and their results will build a tool to enable investigation-based education in environments lacking the capabilities of a major research institution.

Food for the 21st Century: Do We Need 11 Billion People?
Paul Takhistor (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 2050. 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.

Stigmatization of Mental Illness: Can We End Stereotypes of Mental Illness?
James Walkup (Clinical Psychology)
Nearly half of all Americans will meet criteria for a mental disorder at some point in their lives; yet only a fraction of them will actually seek counseling or other mental health services. One of the major reasons people avoid seeking help is because of the stigma that is associated with having a mental disorder. This seminar will explore this phenomenon of stigma from a variety of perspectives, taking up such questions as: Where does stigma originate? Why are some mental health problems more dreaded or feared than others? Do the stereotypes about mental disorders contain a kernel of truth? What, if anything, can be done to reduce or eradicate the problem of stigma?

The Amazing Green-Fluorescent 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 chromatophores, 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 biologists who can genetically label any colorless protein, or any cell, tissue, organ, or even create 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 brightly 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 Walford (Nuttritional 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.

Robotics: A Primer
Jingjin Yu (Computer Science)
This seminar provides a gentle introduction on the subject of robotics and in particular mobile robots. The seminar will introduce students to state-of-the-art robotics in industry and research, exposing students to the wide spectrum of robotics technology, spanning medical (robotic surgery), transportation (autonomous vehicles), logistics (warehouse robots), and many conceptual developments. Next, we will turn our attention to the essential fundamentals of robotics, including sensors, planning/computer control, and many conceptual developments. Finally, students will engage in hands-on activities by doing simple coding tasks, combined with demonstrations using robot platforms developed at the professor’s lab.

Harry Potter and Behavioral Genetics
Lei Yu (Genetics; Center of Alcohol Studies)
Ying Sun (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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