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<tr>
<th>Last</th>
<th>First</th>
<th>Research Area</th>
<th>Office</th>
<th>Phone</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Acar</td>
<td>Murat</td>
<td>Molecular, Cellular and Developmental Biology</td>
<td>Yale West Campus B31</td>
<td>(203) 737-3255</td>
<td><a href="mailto:murat.acar@yale.edu">murat.acar@yale.edu</a></td>
</tr>
<tr>
<td>Brown</td>
<td>Eric</td>
<td>Mechanical Engineering and Materials Science</td>
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<td>(203) 432-7411</td>
<td><a href="mailto:eric.brown@yale.edu">eric.brown@yale.edu</a></td>
</tr>
<tr>
<td>Clark</td>
<td>Damon</td>
<td>Molecular, Cellular and Developmental Biology</td>
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<td>(203) 432-0750</td>
<td><a href="mailto:damon.clark@yale.edu">damon.clark@yale.edu</a></td>
</tr>
<tr>
<td>Heeger</td>
<td>Karsten</td>
<td>Experimental neutrino physics and dark matter</td>
<td>JWG 508</td>
<td>(203) 432-3082</td>
<td><a href="mailto:karsten.heeger@yale.edu">karsten.heeger@yale.edu</a></td>
</tr>
<tr>
<td>Howard</td>
<td>Jonathon</td>
<td>Biophysics</td>
<td>Bass 334A</td>
<td>(203) 432-7245</td>
<td><a href="mailto:jonathon.howard@yale.edu">jonathon.howard@yale.edu</a></td>
</tr>
<tr>
<td>Mochrie</td>
<td>Simon</td>
<td>Experimental Condensed Matter Physics / Biophysics</td>
<td>SPL 68C</td>
<td>(203) 436-4809</td>
<td><a href="mailto:simon.mochrie@yale.edu">simon.mochrie@yale.edu</a></td>
</tr>
<tr>
<td>Murray</td>
<td>John</td>
<td>Psychiatry</td>
<td>34 Park Street</td>
<td>(203) 737-2382</td>
<td><a href="mailto:john.murray@yale.edu">john.murray@yale.edu</a></td>
</tr>
<tr>
<td>Poland</td>
<td>David</td>
<td>Theoretical Particle Physics</td>
<td>SPL 53B</td>
<td>(203) 432-6959</td>
<td><a href="mailto:david.poland@yale.edu">david.poland@yale.edu</a></td>
</tr>
<tr>
<td>Tipton</td>
<td>Paul</td>
<td>Experimental Particle Physics</td>
<td>SPL 34</td>
<td>(203) 432-3651</td>
<td><a href="mailto:paul.tipton@yale.edu">paul.tipton@yale.edu</a></td>
</tr>
</tbody>
</table>
Using the yeast *Saccharomyces cerevisiae* as a model organism, we study the genetic and phenotypic changes cells implement and experience during the processes of Adaptive Gene Network Evolution and Cellular Aging.

We are interested in understanding how gene networks are rewired while cells evolve in controlled laboratory environments. Our work combines experimental, theoretical, and computational approaches to investigate general design principles that help gene networks robustly function in a variety of genetic backgrounds and environmental conditions.

We are also interested in uncovering the genetic mechanisms of cellular aging. Which genes and gene networks are responsible for controlling the aging process? Which decision-making sequences can be executed to maximize the life span of a living system? Despite the fundamental nature of these questions, we have very limited understanding on the cellular mechanisms governing aging. Our laboratory applies quantitative Systems Biology approaches to the study of this complex phenotype, with the goal of gaining novel insights into the regulation of cellular aging.

**Contact Information:**

Murat Acar, PhD
murat.acar@yale.edu
http://acarlab.commons.yale.edu

Address: Yale West Campus, Blg: B31, Room: 201A
I have projects for students to work on in the following areas:

1. Shear thickening fluids: suspension such as cornstarch and water behave fluid-like under low stress, but solid-like under high stress, and exhibit a range of unusual phenomena, such as the ability of the person to run on the surface of the fluid. Surprisingly, it is still not understood why the suspensions behave this way. My group uses experiments to develop a model to describe and predict this behavior, so that we can ultimately design materials for impact protection. Available projects include making quantitative observations of these phenomena to test the model we are developing (search for ‘cornstarch and water’ on YouTube to see some examples).

2. Mechanics of interlocking particles: soils with plant roots and polymers are examples of random arrangements of randomly arranged, mechanically interlocking particles. We are testing a model that can predict how mechanical interlocking contributes to the mechanical strength of randomly arranged systems as a function of particle shape. We are looking for help to investigate this mechanism with model granular packings including chains, staples, and rods. We test model predictions of how the strength of packings relates to statistics of how the particles are deformed after the packing is compressed.

3. Materials for magnetohydrodynamics: We are developing suspensions of magnetic particles in liquid metals that will allow us to perform magnetohydrodynamics experiments on the laboratory scale, potentially reproducing phenomena such as the dynamo effect that generates planetary and stellar magnetic fields. We are looking for someone to help us maximize the magnetic susceptibility of the materials by measuring susceptibilities of different particle shapes and sample configurations.

For more information:
http://www.eng.yale.edu/brown
office: Mason M2
eric.brown@yale.edu
We are interested in understanding how neurons compute. To do this, we investigate the neural processing steps in the visual system of the fruit fly *Drosophila*, where luminance signals from photoreceptors are transformed into signals of visual motion. We want to learn what algorithm mathematically describes these processing steps, and also to learn how the neurons in these circuits implement that algorithm. To investigate this circuit, we capitalize on the genetic tools in *Drosophila* and measure the response properties of single neurons and neural connections. We also silence those single neurons and learn how that silencing affects the circuit’s computation and the fly’s behavioral responses. With these measurements and manipulations, we develop and test quantitative models for how a small visual circuit extracts motion information from the visual world. The computations involved – filtering, nonlinear interactions, and subtraction – are common to many circuits and computations, so the principles we extract will apply broadly across neural systems.
Cryogenic Underground Observatory for Rare Events (CUORE)
CUORE is a tightly packed array of 988 TeO2 bolometers operated at 10mK to search for neutrinoless double beta decay and to measure the mass of the neutrino. Neutrinoless double beta decay is a yet unobserved process. It can only occur if neutrinos are their own antiparticles. The Cryogenic Underground Observatory for Rare Events is located in the Gran Sasso National Underground Laboratory in Italy. The main goal of the experiment is to search for neutrinoless double beta decay in Te-130. With CUORE, we can also look for dark matter and other rare, low-energy event. Our group is developing a novel calibration system for the energy calibration of individual bolometers with radioactive sources at 10mK and involved the analysis of data from CUORE-0 and CUORE.
CUORE website
CUORE publications
Contact: Profs. Heeger and Maruyama

Daya Bay Reactor Neutrino Experiment (Daya Bay)
The Daya Bay reactor neutrino experiment is a US-China-Russia collaboration to search for and measure the yet unknown neutrino mixing angle $\theta_{13}$. The experiment is located at the Daya Bay nuclear power plant near Hong Kong, China. Data taking will start in Spring 2011. Our group has overall responsibility in the US for the design and construction of the antineutrino detectors. Together with the University of Wisconsin Physical Sciences Laboratory we oversaw the assembly and installation of the antineutrino detectors at Daya Bay. Our group is now involved in the oscillation analysis and in the measurement of the reactor flux and spectrum.
Daya Bay website
Daya Bay publications
Contact: Prof. Heeger

Dark Matter Search at the South Pole (DM-Ice)
More than 20% of the Universe consists of dark matter. While the existence of dark matter has been firmly established, dark matter particles have not been detected yet. We are developing detectors for a dark matter search 2.5km deep in the South Pole ice. DM-Ice is searching for dark matter in the southern hemisphere. The goal is to perform a search for dark matter using the time variation resulting from the motion of the detector relative to the dark matter halo as a signature. The project is inspired by the evidence for a positive signal in the DAMA and, more recently, the CoGeNT experiment. The Antarctic ice offers a clean environment to conduct a dark matter experiment, complete with scientific infrastructure provided by the NSF South Pole Station. If confirmed, the observation would revolutionize our understanding of particle physics and cosmology. See also the article on the arXiv for more details. Currently we have 17 kg of NaI detector in operation in the South Pole ice, just below IceCube. We are in the design phase for a 250 kg detector which would be able to do a sensitive test of DAMA.
DM-Ice website
DM-Ice publications
Contact: Prof. Maruyama

For more information: http://wlab.yale.edu or contact karsten.heeger@yale.edu
A High-Energy Neutrino Telescope (IceCube)

The IceCube Neutrino Detector is a neutrino telescope that finished construction in February 2011 at the South Pole. IceCube uses deep Antarctic iceinstrumented with 5160 photomultiplier tubes (PMTs) at depths between 1,450 and 2,450 meters. The main goal of the experiment is to detect neutrinos in the high energy range, spanning from 1011 eV to about 1021 eV. Prof. Maruyama’s focus is in the low energies. IceCube can also detect 10 MeV neutrinos coming from nearby supernovae, from those, we can study how supernovae explode as well as fundamental properties of neutrinos (theta-13, mass hierarchy, etc.) With the addition of DeepCore, we can study ~100 GeV neutrinos to study atmospheric neutrino oscillation and dark matter collected in the Sun, Earth, and the Galactic Center.

IceCube website
IceCube publications
Contact: Prof. Maruyama

The Nuclear Structure Group

The Nuclear Structure Group at WNSL is involved in researching structural evolution in many different regions of the nuclear landscape. We have an active experimental program, which involves research at US and international facilities (e.g. Argonne, Technische Universität München, Grenoble, Lawrence Berkeley, Legnaro, NSCL), often utilizing Yale instrumentation. For more information on the work that we do, visit our research and instrumentation pages.

Contact: Profs. Casten and Werner.

Relativistic Heavy Ion Physics

The research activities of the Relativistic Heavy Ion Group at Yale involve experimental research on the STAR experiment at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory (BNL) on Long Island, New York, and on the ALICE experiment with heavy ions at the Large Hadron Collider (LHC) located at the Center for European Nuclear Research (CERN) in Geneva, Switzerland. Both experiments seek to form and investigate hot, dense QCD matter (the QGP) at several trillion degrees (keV) absolute temperature.

RHIC website
RHIC Publications
Contact: Profs. Harris and Caines

Development

Precision Oscillation and Spectrum Experiment (PROSPECT)

Previous measurements of the reactor neutrino flux suggest a deficit in the observed number of reactor antineutrinos. This could be due to new physics such as as sterile neutrinos or reveal a lack of understanding of reactor neutrinos. We are currently developing a new experiment located at very short baselines near a research reactor to make a precision measurement of the reactor antineutrino flux and spectrum.

PROSPECT publications
Contact: Prof. Heeger

For more information: http://wlab.yale.edu or contact karsten.heeger@yale.edu
Howard Lab: Mechanics of Cell Shape and Motion

Microtubule dynamics
Varga et al. 2009
Gardner et al. 2011
Zanic et al. 2013
Podolski et al. 2014
Bowne-Anderson et al. 2015

Flagellar motility
Riedel-Kruse et al. 2007
Friedrich et al. 2010
Geyer et al. 2013
Mukundan et al. 2014
Sartori et al. 2015

Neuronal morphology
new project!

Mechanical feedback organizes the cytoskeleton
Experimental AND theoretical approaches!
Simon Mochrie

Project 1: Tensegrity Mechanics.

(Theory project suitable for someone who knows Newton’s Laws and may be interested in learning a little representation theory.)

A tensegrity (tensional integrity) structure, or simply a tensegrity, consists of a number of compression elements that are connected together by tension elements. According to the strictest definition, a tensegrity’s compression elements can not contact each other, but the tensegrity nevertheless is self-supporting, and is more-or-less rigid under the action of external forces. Interestingly, tensegrities may be a model for a number of biological structures. Specifically, it has been hypothesized that the cytoskeleton forms a microscopic tensegrity, in which actin filaments are cables under tension and microtubules are struts under compression. The figure shows a 120 strut tensegrity built from drinking straws and rubber bands, that could be a model of cell mechanics. Remarkably, the theory for this structure has not been worked out yet. This project seeks to do just that.

Project 2: super-resolution optical fluctuation imaging.

(Computational and/or wetlab project suitable for someone who knows MatLab or wants to learn it and/or wants to use web-lab skills in a physics context)

The 2014 Nobel Prize in Chemistry, awarded to Betzig, Hell and Moerner “for the development of super-resolved fluorescence microscopy”, recognized the on-going revolution in our capability to image nanoscale structures within living systems, that super-resolution methods have initiated. Recently, super-resolution optical fluctuation imaging (SOFI) has been proposed and demonstrated. SOFI generates sub-diffraction-limit images by examining the temporal fluctuations in a sequence of images. Favorable features of SOFI include that: it enhances the resolution along all three dimensions; it eliminates uncorrelated background signal, thus improving contrast; and it can be implemented entirely in software. Thus, SOFI has the potential to give every microscope set-up super-resolution capability. This project seeks to develop and implement a new version of SOFI – TPR-SOFI – that overcomes a number of its key limitations. TPR-SOFI will employ the reversible binding and unbinding of a fusion protein, consisting of a tetratricopeptide (TPR) protein, which serves as a binding module, fused to an array of (say) five tandem FPs. The TPR reversibly binds a specific five-amino acid tag, that itself will be fused to the protein of interest. Thus, when the TPR-multi FP construct binds to or unbinds from the amino-acid-tagged protein, there will be an approximately five-fold larger change in intensity than for a single FP, switched optically. The figure shows a proof-of-principle microscopy image of bacteria (E. coli) expressing a protein called Ftsz that binds a fluorescently-tagged TPR, which are the bright spots. One sub-project, which is computational, is to write software to turn a movie of such microscopy images into super-resolution images. Another sub-project, which is wetlab-based, is to participate in engineering TPR-multi-FP fusion proteins to massively improve the signal-to-noise in TPR-SOFI.
Computational Neuroscience

Modeling Brain Circuits to Uncover Principles of Dynamics and Function

Questions

• What are the computational principles governing how the brain works? (How can we “do physics” on neural systems?)

• How can we model brain dynamics across multiple spatiotemporal scales (synapses, neurons, circuits, networks)?

• How do neural circuits physically compute core cognitive functions, such as working memory and decision making?

• How do large-scale network dynamics emerge from structured long-range connections and local properties?

• How can we model brain disorders as perturbations to model parameters?

Techniques

• Computational modeling over multiple scales of analysis, from local spiking microcircuits to large-scale networks

• Dynamical systems theory (e.g., attractors, oscillations)

• High-performance cluster computing for model simulation and analysis

• Analysis of experimental data:
  — single-neuron spike-train recording
  — whole-brain neuroimaging

Skills involved: Scientific programming (Python preferred)
Conformal Field Theories (CFTs) are a class of theories that are invariant under a class of transformations called conformal transformations. CFTs have solved and given insight into theories that have otherwise been very challenging to solve. Current undergraduate projects involve Taylor expanding a sum rule to solve the 3D Ising Model, calculating tensor correlation functions, and convergence properties of derivatives of four point correlation functions. Much of this work uses a revival of a novel approach to solving CFTs called the Conformal Bootstrap.

Professor: David Poland
Undergraduate Researchers: Jason Parisi, Alex Mousatov

Email Us!

David.poland@yale.edu
Jason.parisi@yale.edu
Alexandros.mousatov@yale.edu
YSEA Undergraduate Grants

YSEA provides small grants to support undergraduate projects that involve technical learning activities through research or application of science or technology intended to achieve a specific goal. Grants typically range from five hundred dollars to several thousand dollars.

Two types of grants are available:

1. **Individual grants** are primarily intended to serve research projects undertaken by a single student working under a faculty advisor.
2. **Group grants** are primarily intended to serve projects undertaken by multiple students working under one or more faculty advisors, including, for example, those sponsored by Yale student organizations.

YSEA Undergraduate Grants are intended to fund a finite project or project phase that has specific objectives and can be completed within a predetermined timeframe, not to exceed one year. Grant recipients are selected based on technical merit and learning potential.

The application process requires the individual or group applicant to send an abstract of the grant proposal, budget form and a letter from their faculty advisor to the committee chair. Funding generally is not provided for teaching, travel or general purpose equipment. Grant recipients are asked to submit a report or other output to the committee chair at the conclusion of the project. These submittals should be suitable for publication in the *Yale Scientific Magazine* or the YSEA web site.

To apply for a YSEA grant (individual or group) please contact the YSEA undergraduate grants committee at Grants@YSEA.org.

### 2014-2015 Grant Recipients

#### Individual Research Grants

<table>
<thead>
<tr>
<th>Student</th>
<th>Description</th>
<th>Web site</th>
<th>Report</th>
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<tbody>
<tr>
<td>Brianna Chrisman</td>
<td>Molecular Dynamics Simulations of Two-Component Hydrogels</td>
<td></td>
<td></td>
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<tr>
<td>Andres Valdivieso</td>
<td>Crosschecking haplotypes of Galápagos giant tortoises in preparation for Next-Generation Sequencing</td>
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#### Group Grants

<table>
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<tr>
<th>Group</th>
<th>Description</th>
<th>Web site</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yale InVe</td>
<td>Design &amp; build an autonomous sailboat.</td>
<td><a href="http://www.yaleinve.com">www.yaleinve.com</a></td>
<td></td>
</tr>
<tr>
<td>YURA</td>
<td>Design and build a vehicle to enter and win the University Rover Challenge</td>
<td><a href="http://www.yaleroverassociation.com">www.yaleroverassociation.com</a></td>
<td></td>
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<tr>
<td>Team NovaSheath</td>
<td>Directional sheath for a safer and more efficient guidewire insertion using the modified Seldinger technique</td>
<td></td>
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<tr>
<td>Yale Solar Decathlon Team</td>
<td>Enter and win a national Solar Decathlon competition that challenges 20 university teams to design and build a net-zero home in under two years.</td>
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</table>

View Past Recipients

- [2013-2014](#)
Overview

This program enables undergraduates (primarily rising juniors and seniors) interested in pursuing a career in the sciences to conduct interdisciplinary research at Yale for a 10-week period during the summer. Our program focuses on research at the intersection of biology, physics, and engineering and serves as a glimpse of what graduate school at a large research institution is like.

The REU features a series of workshops, which combine group exercises with short periods of lecturing and discussions, to complement the research experience participants obtain in individual laboratories. The workshops help students develop strong communication skills, briefly explore scientific ethics, and help participants learn about the graduate application process and the difference between a PhD and an MD/PhD. REU participants are provided with the opportunity to present their research to the Yale community, both as an oral and as a poster presentation. Finally, there are several opportunities for REU students to interact with graduate students and postdocs at Yale. We have some social activities in place for students to help them enjoy the weekends and integrate into Yale's campus and New Haven easily; however, this is not the focus of our program. Instead, we do provide participants with information on nearby recreational areas and points of interest.

This REU Site is closely linked with the Raymond and Beverly Sackler Institute and Yale's Integrated Graduate Program in Physical and Engineering Biology (PEB), and as such, hosts REU students in the laboratories of Sackler/IGPPEB affiliated faculty (click here to see the list of faculty labs).

Details of the research program

- The program for 2016 will run Sunday, May 29 - Friday, Aug 5
- The program provides financial support of $5,250 for the 10-week period. In addition, it will cover travel expenses up to $400 and provide a food allowance and free room and board on Yale's campus.
- Students will be involved in a variety of enrichment activities. These include a series of workshops covering laboratory procedures, documenting laboratory results, delivering compelling presentations, and discussing scientific ethics and the process of applying to graduate school.
- Students will be able to showcase their research through a power point presentation halfway through, and a poster session towards the end, as part of an undergraduate research symposium, held in conjunction with Yale's SURF program and the CEMRI CRISP REU program at Yale.
- Research will be balanced with some social activities, such as a welcoming picnic and a cricket match.
- Selected students will be matched with Sackler/IGPPEB affiliated faculty advisors based on research interests, prior research experiences, and available openings.

NSF REU site link

How to Apply

You can apply through Yale's Graduate School Application website. Note: Because the application for the Sackler / NSF REU is set up through the online application system of Yale University's Graduate School of Arts and Sciences, some of the language throughout the application may suggest
that you are applying to the Graduate School at Yale, this is not the case. Please ignore wording related to graduate study at Yale as you complete the application.

The complete application will include 1) the application form (including a personal statement), 2) a CV 3) two letters of recommendation and 4) a transcript.

The application deadline for 2016 is February 1.

Eligibility: you must be a permanent resident or a US citizen to apply, you must have health insurance, and you must be enrolled at an undergraduate institution the summer of your internship.

Click here to view the faculty affiliated with the program.

For questions about the fellowship e-mail dorottya.noble@yale.edu.

Partnerships

We have developed strong partnerships with Connecticut College and the University of Maryland, Baltimore County’s Meyerhoff Scholars Program but applicants from non-partner institutions are also welcome.
RESEARCH EXPERIENCES FOR UNDERGRADUATES
Yale University | Summer 2016

INTERDISCIPLINARY RESEARCH
• Atomic scale design, control and characterization of complex oxide interfaces
• studying the novel chemical, electronic, and magnetic properties of nanomaterials
• Multi-scale surface engineering with bulk metallic glasses
• Theoretical modeling of nanomaterials, surfaces, and interfaces at the atomic level
• Synthesis of materials at the atomic scale

Applications due by Feb. 1, 2016

http://crisp.southernct.edu/index.php/Research_Experiences

Center for Research on Interface Structures and Phenomena

The CRISP REU program provides students with the opportunity to conduct team-based interdisciplinary research. During the course of this eight-week research program, REU students will be conducting research under the advisement of university faculty and researchers.

NON-RESIDENTIAL REU PROGRAM: June 6 – August 1, 2016

STIPEND:
Each REU participant will receive a stipend of $4000 (which includes $1000 for travel/parking). These students attend all of the program events, but are responsible for transportation to and from campus.

ELIGIBILITY:
This program is open to highly motivated undergraduate students who have completed their junior year, although consideration is given to exceptionally well qualified underclassmen. US citizenship or permanent residency is required. Minorities, women and persons with disabilities are strongly encouraged to apply.

APPLICATION PROCESS:
Starting Nov. 1 candidates must apply directly to the Yale SURF program through the Leadership Alliance at www.theleadershipalliance.org Students must also complete a supplementary application for CRISP to indicate interest available at http://crisp.southernct.edu/index.php/Research_Experiences.
INTERDISCIPLINARY RESEARCH

- Atomic scale design, control and characterization of complex oxide interfaces
- Studying the novel chemical, electronic, and magnetic properties of nanomaterials
- Multi-scale surface engineering with bulk metallic glasses
- Theoretical modeling of nanomaterials, surfaces, and interfaces at the atomic level
- Synthesis of materials at the atomic scale

Applications due by Feb. 1, 2016

http://crisp.southerntc.edu/index.php/Research_Experiences

The CRISP REU program provides students with the opportunity to conduct team-based interdisciplinary research. During the course of this eight-week research program, REU students will be conducting research under the advisement of university faculty and researchers.

RESIDENTIAL REU PROGRAM: June 6 – August 1, 2016

STIPEND:
Each REU participant will receive a stipend of $4000 (which includes $1000 for food). This is a residential program and university housing will be provided on the Yale campus.

ELIGIBILITY:
This program is open to highly motivated undergraduate students who have completed their junior year, although consideration is given to exceptionally well qualified underclassmen. US citizenship or permanent residency is required. Minorities, women and persons with disabilities are strongly encouraged to apply.

APPLICATION PROCESS:
Starting Nov. 1 candidates must apply directly to the Yale SURF program through the Leadership Alliance at www.theleadershipalliance.org. Students must also complete the CRISP supplementary application to indicate interest available at http://crisp.southerntc.edu/index.php/Research_Experiences.
Summer Employment Opportunities: 2015-2016

Yale Young Global Scholars Program
Instructor Positions with YYGS

Why Be an Instructor?

The Yale Young Global Scholars Program would not be possible without the dedicated work of its graduate and undergraduate instructors. YYGS provides a unique opportunity for Yale students to work as instructors, teaching talented high school students from around the world in the intimate context of small seminars, discussion sections, and intense session-long independent research projects.

Each session of the Yale Young Global Scholars Program features lectures by renowned Yale faculty and leading practitioners in fields ranging from philosophy and economics to neuroscience and conservation biology. Instructor-led discussion sections add an additional level of depth to these lectures. Small seminars, developed entirely by the YYGS instructors, cover a range of topics and allow students and instructors alike to explore their passions. All students also participate in a research project under the supervision of an instructor, which culminates in an extended essay and an oral presentation at the end of the two-week session.

By teaching in YYGS, instructors obtain significant real-world experience in the development of curriculum, classroom management, and student mentorship. For those who choose to live on campus during the summer, the program will also provide them with the opportunity to assist with residential life programming.

For the first time ever, the Yale Young Global Scholars Program has collaborated with the Yale Center for Teaching and Learning to provide credit for instructors working toward a Certificate of College Teaching Preparation (CCTP).

If you have a strong interest in teaching high school students, want to inspire the next generation of talented trailblazers, or want more leadership experience in the academic setting, we strongly encourage you to apply.

All Yale students, including those graduating in May 2016, are eligible to apply. Applicants can apply to one, two, or three consecutive sessions of YYGS and can indicate preferences in the online application.
What are the Responsibilities?

Application Reading*
Instructors teaching in YYGS-Beijing and YYGS-Singapore will read applications from high school applicants to YYGS-Beijing and YYGS-Singapore, respectively, as part of their mandatory responsibilities. Applications to the YYGS sessions held at Yale during the summer will be read by a separate team of application readers. See page 4 for more information on becoming an application reader for the on-campus sessions of YYGS.

Curriculum Development
Instructors in the Yale Young Global Scholars Program are responsible for developing unique seminars on their choice of academic topics. Beginning in the early spring, YYGS instructors submit a proposal of their intended seminars. Upon approval of their proposal from the YYGS leadership team, instructors develop assigned readings, discussion questions, and all other aspects of their seminars. The key to successful seminars is substantial planning in the months preceding the session. Instructors are encouraged to be creative in designing engaging, hands-on seminars that challenge their students. YYGS will provide some financial support to instructors for the development of classroom innovations.

Teaching
Instructors will teach between four to eight small seminars during the session(s), as well as lead discussion sections following faculty lectures, and accompany on-campus tours or excursions. Occasionally, instructors may be asked to participate in college prep and diversity workshops or career panels.

Residential Life
All YYGS instructors will participate in residential life at either Pierson or Jonathan Edwards College on Yale’s central campus. Every instructor will be assigned to a small “family group” with which he or she will conduct informal activities as well as mentoring. Instructors may also host special meals for students to discuss academics, career planning, or any other topic of interest.
All instructors will help with student check-in and check-out at the start and end of each session. Additionally, every instructor living on-campus will be asked to assist with evening or afternoon supervision, as well as to periodically conduct floor-check on a rotation with the other instructors.
In overseas sessions of YYGS, such as Beijing and Singapore, the nature of residential life duties may change slightly to accommodate the needs of these off-campus locations.

Other Duties
Instructors are the face of the Yale Young Global Scholars Program and as such are held to the highest standards of responsibility and integrity. YYGS instructors are expected to be an active presence in the residential college, and should react to any emergent student situations. Given the nature of our program, other responsibilities may arise periodically and will be delegated to team-members as necessary.
Important Dates

November 1, 2015 – Online Application for Instructors opens
January 13, 2016 – Deadline to Apply to be a YYGS Instructor (all sessions excluding Beijing). Applications will be reviewed on a rolling basis.
June 19 - July 12, 2016 – Politics, Law & Economics (PLE) and Applied Science and Engineering (ASE) Sessions
July 8 - 21, 2016 – International Affairs & Security (IAS) and Biological & Biomedical Sciences (BBS) Sessions
July 26 - August 8, 2016 – Technology, Innovation & Entrepreneurship (TIE) and Sustainability Energy & Environment (SEE) Sessions

Compensation

YYGS Beijing – Stipend during the period of curriculum development and application reading. All-expense-paid trip to Beijing for session implementation.
YYGS Singapore – Stipend during the period of curriculum development and application reading. All-expense-paid trip to Singapore for session implementation.
YYGS New Haven – Attractive stipend for each two week session and on-campus meals and housing with the agreement of additional residential life responsibilities.

How To Apply

Our join us page provides additional information regarding working with YYGS. The online application for this and other positions is available under the “Staff Application” box. Please fill out the form and upload a CV/resume and cover letter. YYGS will contact applicants if they are selected for an interview.
Application Readers for YYGS

In 2015 YYGS received over 2,000 applications for its 600 spots, and more are expected as the program expands for 2016. In order to process all of these applications, we are looking for dedicated individuals to help us read during the course of the spring semester, primarily from late January to early March. Preference will be given to former instructors as well as to program alumni, but any interested individual is encouraged to apply.

Reading applications is a mandatory responsibility for those teaching in YYGS-Beijing and YYGS-Singapore. Prospective instructors for those sessions need not apply to this position unless they are also interested in reading applications for the summer programs at Yale.

Important Dates

November 1, 2015 – Online Application opens
November 30, 2015 – Deadline to Apply to be an Application Reader for YYGS

Compensation

YYGS New Haven Application Readers are paid a competitive hourly wage.

How To Apply

Our join us page provides additional information regarding working with YYGS. The online application for this and other positions is available under the “Staff Application” box. Please fill out the form and upload a CV/resume and cover letter. YYGS will contact applicants if they are selected for an interview.
Summer Leadership Positions with Yale Young Global Scholars

YYGS Nursing Staff

Yale Young Global Scholars operates a nurse’s office in each of its residential colleges during the summer. Each infirmary is staffed by a Lead Nurse and two Nursing Assistants who will be on an on-call rotation during each session to administer medication, triage any health issues, and look out for the general health and well-being of the YYGS students. A member of the Nursing Staff will be responsible for accompanying students to Yale Health or the Yale New Haven Hospital in serious circumstances.

Qualifications and Responsibilities

Lead Nurse
Any registered nurse (RN), nurse practitioner (NP), or certified nursing assistant (CNA) interested in working with high school students. Final-year nursing students from the Yale School of Nursing, as well as current school nurses are particularly encouraged to apply. The lead nurse will supervise the two nursing assistants and will develop a rotation schedule for the infirmary team. The lead nurse will also be responsible for reporting any issues or emergencies to a member of the YYGS leadership team as necessary. Finally the lead nurse will be responsible for liaising with Yale Health and the YYGS leadership.

Nursing Assistants
Any nursing student interested in obtaining first-hand experience working with high school students is encouraged to apply. Nursing assistants will staff the residential college nurse’s office alongside the Lead Nurse, and work under him/her to help distribute medication, assist students in need of first aid and basic health issues, and triage any serious health issues for off-site care.

Compensation

Nursing staff will be paid an attractive stipend for each two-week session commensurate with their level of experience. Free room and board will be provided to all members of the nursing staff, who will be required to live on-campus for the duration of the session(s).

How to Apply

The online application can be accessed through the “Staff Application” link on our join us page. Applicants should complete the form and upload a CV/resume and cover letter, as well as any licensing information (if applicable). YYGS will contact applicants if they are selected for an interview.
Directors of Residential Life

The Directors of Residential Life (DRLs) are responsible for the residential life component of the Yale Young Global Scholars Program. The DRLs work closely with the nursing staff to care for the health and well-being of the participants, and handle any non-medical issues that may arise during each session. Each residential college has two DRLs who are given the autonomy and flexibility to develop a schedule that provides 24/7 coverage to our 200-250 residential participants. Directors of Residential Life are core members of the leadership team, and can apply to one, two, or three consecutive sessions. Preference will be given to qualified candidates who can work in multiple sessions.

Detailed Job Description

Working as a team, the directors of residential life will have responsibilities that include:

- Coordinating on-campus activities for when students are not in class, including special events and “family time.”
- Overseeing floor check (curfew) in the evenings.
- Helping with check-in and check-out procedures.
- Acting as the first point of contact for any disciplinary issues.
- Providing the day-to-day management of the residential life interns in the Program Office.
- Being on-call during overnight hours in case of a lock-out or non-medical emergency.

Compensation

DRLs will be paid a competitive salary for each two-week session commensurate with their level of experience. Free room and board will also be provided to DRLs for the duration of the summer, including the interim days between sessions.

How to Apply

The online application can be accessed through the “Staff Application” link on our join us page. Applicants should complete the form and upload a CV/resume and cover letter. YYGS will contact applicants if they are selected for an interview.
For more information

VISIT
globalscholars.yale.edu

CONTACT
global.scholars@yale.edu

Yale Young Global Scholars is an official program of Yale University.
Are you an undergraduate with research experience?

Would you like an opportunity to present your research (or research plans) to high school students from around the world?

Yale Young Global Scholars Program will be holding Undergraduate Research Fairs in Summer 2016

- Applied Science & Engineering → Sun 6/26/16
- Biological & Biomedical Science → Sun 7/17/16
- Sustainability, Energy & Environment → Sat 7/30/16

Research on any topic is welcome in all sessions.

For more information or to sign up:
Visit: [http://globalscholars.yale.edu](http://globalscholars.yale.edu)
Contact: michael.honsberger@yale.edu