

HUMAN BIOLOGY



STANFORD UNIVERSITY

EVOLUTION OF A NUTRITIONIST

Christopher Gardner brings his broad intellectual experience to the human nutrition course that he has taught since 2001. With a BA in philosophy and a PhD in nutrition science, Gardner epitomizes HumBio's interdisciplinary approach, teaching science from both a biological and sociological perspective. Students learn about essential topics, from the physiological nitty gritty of absorbing specific nutrients in food to the relationship between culture and food supply. Gardner teaches with gusto, tapping into his research which has evolved over twenty years from the microscopic to the institutional level.

Gardner, who is now the Rehnberg Farquhar Professor of Medicine at the Stanford Prevention Research Center, arrived at Stanford as a postdoc in 1993 excited to work among nutrition researchers who focused on behavior intervention. Before Stanford, his nutrition colleagues at the University of California at Berkeley were primarily focused on the cellular and mechanistic aspects of nutrition science, not human behaviors. He quickly learned that human nutrition behavior intervention research was expensive and it could be challenging to get adequate research funding.

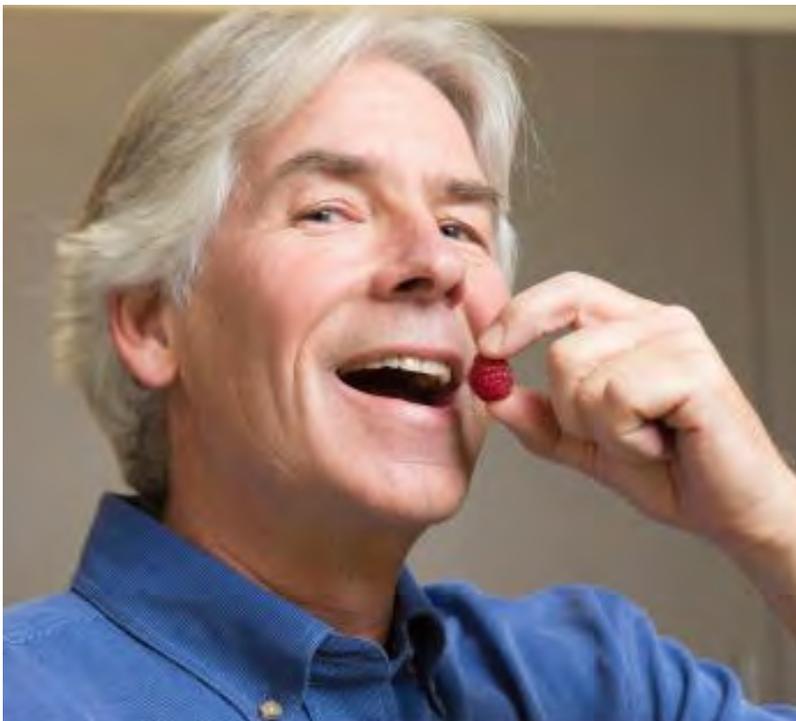
Tapping into data from Dr. John (Jack) Farquhar's 20-year, Five City trial on the effects of community-based health interventions, Gardner cranked out papers on topics such as the population-based distribution of blood lipoproteins related to diet. In 1996, while still a postdoctoral research fellow, he used leftover blood samples from the Five-City trial to study the association of small low-density lipoprotein particles and the incidence of coronary artery disease. This earned him a first author publication in JAMA.

As his research gained traction, Gardner earned grants to run his own intervention studies. His first pilot study had just 21 participants. Within several years his studies grew to include hundreds of participants and today he estimates that number has topped 2,000. He charted diet compliance and weight loss while comparing how health components like blood lipids, inflammatory markers and blood pressure are influenced by different kinds of low-fat vs. low-carb, or vegetarian diets, and the components in foods like soy, garlic and fish oil. In 2007, Gardner ran the ["A TO Z Weight Loss" study](#), and its widespread coverage in the popular press catapulted him into the world of [weight loss and fad-diets](#).

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In the interest of practicality, he began his nutrition research career at Stanford as a cardiovascular epidemiologist because, he explained, "that allows an early investigator to publish studies on nutrition and heart disease using existing databases and statistical skills."

Gardner credits his philosophy major for teaching him how to think - outside of the box - providing the intellectual framework for his ground-breaking nutrition research.



WHAT SHOULD WE EAT DR. GARDNER?

“In the field of nutrition there has been a notable change in emphasis, moving from *nutrients* to *foods* and from *foods* to *food patterns*. They are beginning to talk about ‘shifts.’ ... ‘If you eat more of this, you’re going to eat less of that.’ They never talked this way before. It used to be ‘fat is not good for you’...then, ‘sugar is not good for you.’”

Gardner is involved with the American Heart Association, the American Diabetes Association, the Obesity Society and the Culinary Institute of America, and has contributed to changes made in their dietary guidelines.

In the past 10 years, Gardner’s research has shifted to a larger food-systems perspective. A key factor in this shift started when Gardner and colleague Dr. Tom Robinson became interested in testing a hypothesis that getting young adults to make healthful dietary behavior changes might be more effective if the focus was on something other than health.

They wanted to pursue the possibility that learning about the social and environmental issues related to food, such as sustainability and the health and welfare of food industry workers and animals, might motivate better food choices. To test this hypothesis, they created the Human Biology course *Food and Society*. Students from this course and three other health-related Human Biology “control” courses were surveyed about their eating habits before and after their courses. By the end of the quarter, *Food and Society* students reported significant improvements in their food choices, such as eating more vegetables and fewer high-fat dairy and meat products and fewer sweets. Students in the other courses reported no dietary improvements. This result supported what they called a “stealth” nutrition approach (not deception, but rather an indirect approach), and was published in the [American Journal of Preventive Medicine](#). Robinson said, “[We]

tapped into the deeper needs and desires – the intrinsic motivators of the participants – while improving their health as a side effect.”

Another positive side effect of the *Food and Society* course was the expansion of food-systems collaborations at Stanford, and the opportunity to study stealth interventions at a higher level. When Gardner invited faculty from other academic disciplines to add their expertise to the course, he discovered that there were “foodie” colleagues in all seven of Stanford’s schools (e.g., business, legal, medical, educational), with different interests in and perspectives on food-related topics. This inspired him to organize a campus-wide *Food Summit*. This popular event, held annually from 2011–2015, provided a lively and interdisciplinary forum to bring community food advocates together with faculty and students from across Stanford’s undergraduate and professional schools. In 2015, Gardner took these new interests and helped initiate a Stanford-Culinary Institute of America (CIA) collaboration which involves dozens of universities collectively using their dining halls as living laboratories to study how best to maximize the synergy of taste, health and environmental sustainability. “If

universities, work-sites and hospitals make healthy food options ‘unapologetically delicious,’ they can help achieve healthier dietary behaviors on an institutional level,” Gardner explained. “Changes in the high volume of foods they serve and order could eventually impact agricultural practices, potentially improving the quality of our food supply.”

Over two decades of research and instruction, Gardner has accumulated a rich store of dietary knowledge and perspective. While nutrition research will continue to focus on how chemicals and micronutrients affect the cellular mechanisms in our human and animal bodies, Gardner too will continue to gather a bounty of biological and sociological data on the healthiest, most appealing, most do-able diets from the wide world of food-systems. When asked what is the *single* healthiest diet change Gardner would recommend for people and planet? The nutritionist philosopher replied: “As biologically essential as micronutrients are to humans, so much of what is essential to food is culture. The most important thing we can do to improve healthy diets is to bring *pleasure and joy* back to food.”

GARDNER TALKS, NEWS, PROJECTS

Farm Camp, Microbiome, Menus of Change - [Nutrition Press](#)
America's Protein Obsession - [Soul Food Salon](#)
Optimizing Wellness: Nutrition Advice - [Stanford Health Matters](#)
Key to Weight Loss is Quality, Not Quantity - [New York Times](#)

Image courtesy of Gardner





Photo: PXHERE

TEACHING THE HEALTH IMPACT OF SEXUAL ASSAULT AND RELATIONSHIP ABUSE ACROSS THE LIFECOURSE

For 15 years Professor [Marcia Stefanick](#) has challenged undergraduates to think critically about a broad scope of health issues in the Human Biology courses that she teaches, from the role of disease prevention to the effects of sex and gender on health. She is the founding director of Women's Health and Sex Differences in Medicine at Stanford and is a Professor of Medicine, (Stanford's Prevention Research Center), Obstetrics and Gynecology, and by courtesy Health Research and Policy (Epidemiology).

Stefanick was inspired to create the Human Biology course, *The Health Impact of Sexual Assault & Relationship Abuse across the Lifecourse*, after participating on Stanford's Provost's Task Force on Sexual Assault Policies and Practices in 2014. As a representative of the School of Medicine, she advised the 18-member task force of faculty, students, staff and an alumnus on health and medical matters, including on issues related to forensic

exams for sexual assault. The task force made recommendations in three areas: education to prevent sexual violence, support and response in the wake of sexual violence, and the policies and procedures to investigate and adjudicate cases of sexual violence. Stefanick said "The task force chairs did a good job in presenting many sides of the story. We heard from victims of assault, as well as one who was wrongfully charged and lawyers. We also learned how Stanford processes cases." Stefanick met weekly over eight months with the prevention and education group, and learned that new students are an especially vulnerable group and that most sexual assaults occur during their first quarter on campus.

To contribute a solution, Stefanick expanded on one of her medical school courses to create a new Human Biology course. She teaches this in the fall, and has no Core requirements in order to allow new students to enroll. Recognizing the

intensity of the course material and that it could trigger personal experiences, Stefanick works closely with her task force colleagues from Stanford's Office of Sexual Assault & Relationship Abuse Education & Response ([SARA](#)). She invites the Director of the Confidential Support Team, Helen Wilson, PhD, to attend the first class each quarter to connect students with Stanford resources.

The course is broad in scope, focusing first on the campus community resources, then

expanding into the health issues related to sexual assault across the range of gender identity and sexual orientations. They discuss the higher incidence of sexual assault in vulnerable populations, including lower socio-economic groups, undocumented immigrant workers, military personnel, incarcerated



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STEFANICK COURSE

persons, and persons with disabilities including the elderly. Stefanick said, "Students may never get another course like this again, so we need to educate them to consider this pervasive public health issue beyond their time at Stanford so they will be aware as they go out into the world." They also discuss domestic and international sex trafficking, sexual assault at a global level, and successful interventions designed to reduce sexual assault. Students learn about the neurobiological impacts of sexual assault and its public health consequences with a strong correlation to obesity, heart disease, cancer and mental illness.

In many ways, learning about sexuality and sexual assault is complicated for students. While new students are cautioned during orientation to avoid unsafe situations at campus

parties, they are also hoping to be invited to and attend those parties. "Most young people are eager to explore and enjoy their sexuality, but have only been educated about the risks of unsafe sex, like early pregnancy and sexually transmitted diseases," Stefanick explained. "Many have been taught about consent, but they generally haven't yet learned enough about the positive side - and how to promote their sexual health and well-being." In an ideal world, partners would engage in important conversations before

getting into sexual activity.

A major component of Stefanick's course is to discuss sexual assault in the context of social norms. Students are introduced to laws and learn definitions of sexual assault, which differ by state and country. Assignments include responding critically to scholarly articles and reflecting, in writing and in class, on social factors related to victims and perpetrators. Students also critique current news, media and documentaries with the intention of identifying possible reporting biases. Students watch documentaries such as *The Hunting Ground*, *The Mask You Live In* and Public Broadcasting Service (PBS) *Frontline* news stories.

Over four years of teaching this course, Stefanick's knowledge about this subject and her students has grown. Each year she revises the content to keep it relevant and at the forefront of these difficult issues. As a prevention researcher and task force member, she continually searches for ways to add more prevention into her course, such as bringing in medical professionals to present Bystander (Upstander) Intervention training. Stefanick wants her students to come away from this course with a more comprehensive understanding that sexual assault has deep roots in our culture and in neurobiology, and that it carries hefty public health consequences.

"Without these important conversations, 'yes' clearly does not mean 'yes' in a wide range of social interactions, regardless of the additional influence of drugs or alcohol which are often brought into the discourse."

Stefanick

Active Upstander Tips



Notice

Notice the situation.

Be aware of your surroundings



Interpret

Interpret it as a problem.

Do I recognize that someone needs help?



Feel Responsible

Feel responsible to act.

See yourself as being part of the solution to help.



Know

Know what to do.

Educate yourself on what to do.



Intervene

Intervene safely.

Take action but be sure to keep yourself safe.

How to intervene safely

Tell another person.

Being with others is a good idea when a situation looks dangerous.

Ask a person you are worried about if they are okay.

Provide options and a listening ear.

Distract or redirect individuals in unsafe situations.

Ask the person if they want to leave. Make sure that they get home safely.

Call the police (911)

Or someone else in authority or yell for help.

Stefanick's HumBio courses

Sexual Assault & Relationship Abuse over the Lifecourse

Chronic Disease Prevention

Sex and Gender in Human Physiology and Disease

Promoting Health Over the Lifecourse: the Science of Healthy Living

Current Topics & Controversies in Women's Health

Gender & Intersectionality in Global Health

OLUWSEUN (SEUN) ADEBAGBO HB '18
BLACK WOMEN IN MEDICINE DOCUMENTARY
 Diversity in medicine is vital, and students of color who aspire to become doctors can feel discouraged not to see many doctors of color. Seun interviewed five black women physicians in order to share their different academic and career journeys with her fellow students, encouraging them that there is not one "right" path to medical school, and that if they truly want to become doctors nothing can get in their way. Seun's video served as her Capstone Synthesis project and was supported by the Bingham Fund for Student Innovation in Human Biology. [Watch the trailer.](#) [Watch the full documentary.](#)

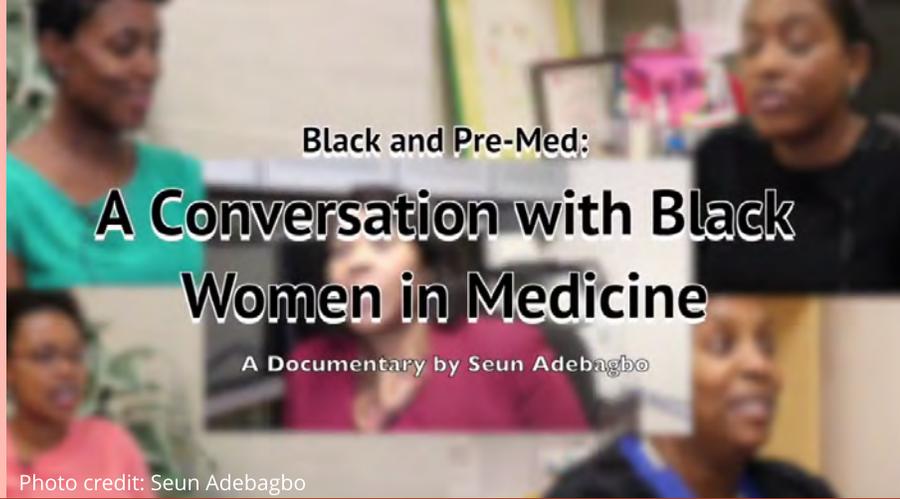


Photo credit: Seun Adebago

Black and Pre-Med: A Conversation with Black Women in Medicine

A Documentary by Seun Adebago

STUDENT NEWS

ACCOMPLISHED INSPIRED & INTERDISCIPLINARY

HANNA PAYNE '19 WINS FIRST PRIZE FOR MINKE WHALE PHOTO

Hanna won first prize in the 2018 Stanford Earth Photo Contest, field category, with her photograph of a juvenile Minke whale. She captured this shot while aboard a Stanford at SEA program ship in the South Pacific. Nearly 200 photos were submitted from around the world for this contest. Hanna's academic area of focus is conservation and sustainability. [See more photos at Stanford Earth website.](#)



Photo courtesy of Hanna Payne

JULIA DANIEL '18 CO-TERM IN COMPUTER SCIENCE INNOVATING TEACHING IN INDIA

As an intern at the Stanford Institute for Innovation in Developing Economies (SEED), Julia piloted new teaching methods at a small engineering college in India, which suffered from problems due to India's rigid post-colonial educational paradigm. One of her solutions was a peer tutoring program with a financial incentive, where a tutor's tuition would be partially reimbursed if their student passed final exams. She also initiated programs for teachers to help them promote better understanding, curiosity and critical thinking in students. Teachers tried techniques like holding labs before lecture to allow students to discover concepts for themselves first, and adding "think-pair-share" conversations in class. [Read more.](#)



Image courtesy of Piya Sorcar

CHRISTINE CHEN '18 BRYCE LOVE '19 TEAM UP ON CONCUSSION EDUCATION

Christine and Bryce are contributing to a groundbreaking effort to change the way high school athletes learn about concussion in *CrashCourse*. This new curriculum, developed at the Stanford Graduate School (GSE) of Education in partnership with TeachAids, uses human-centered design (i.e. what do high school athletes actually respond to?), and a high-tech approach, as seen in the "near peer" interactive video starring Bryce. Bryce won the

2017 Doak Walker Award as the nation's top college running back, the 2017 Lombardi award for the nation's top college football player and was a TeachAids researcher. Christine serves as Chief of Staff at TeachAids, and researched educational strategies to prevent concussions in adolescent athletes for her honors project. Christine & Bryce work with [Dr. Piya Sorcar](#) who founded TeachAids and spearheaded this educational effort. [Read more.](#)

FACULTY NEWS

MICHAEL FRANK, PHD
ENDOWED AS THE DAVID & LUCILE PACKARD PROFESSOR IN HUMAN BIOLOGY



Frank, Associate Professor of Psychology and, by courtesy, of Linguistics, was named to the David and Lucile Packard Professorship, established in Human Biology in 1999. Frank is a developmental psychologist who studies children's language learning and how it interacts with their developing understanding of the social world. He has been recognized as a rising star by the Association of Psychological Science and will draw on his expertise to teach the winter B-side Core: *Behavior, Health and Development*.
[Read more.](#)

KATHERINE PRESTON, PHD
THE BOTANIST IN THE KITCHEN ADVISES WASHINGTON POST

Preston, Associate Director and Lecturer in Human Biology, teaches HumBio courses, *The Human-Plant Connection* and *Genetics, Evolution and Ecology*, the fall A-side Core course. Preston co-authors the *Botanist in the Kitchen* blog. She recently dished up a plant physiology and cooking lesson on okra for Emily Horton of the *Washington Post* and *National Public Radio's* Jill Neimark.



Photo: Sandeep Handa

LISTEN TO HUMBIO PROFS ON PODCAST - THE FUTURE OF EVERYTHING

SANJAY BASU, MSC, MD, PHD
THE POWER OF HEALTHY EATING, THE EVOLVING NATURE OF DIABETES CARE & PREVENTION
Basu, who teaches *Engineering Better Health Systems: modeling for public health*, discusses the new approaches on the horizon as society battles diabetes. Basu is an Assistant Professor of Medicine (Primary Care and Outcomes Research) and, by courtesy, of Health Research and Policy

DAVID MAGNUS, PHD
HOW WILL ARTIFICIAL INTELLIGENCE IMPACT MEDICAL ETHICS
Magnus, who teaches *Foundations of Bioethics*, discusses how AI and machine learning are reshaping the landscape of medical care and the vexing ethical questions underlying algorithms. Magnus is the Thomas A. Raffin Professor of Medicine and Biomedical Ethics, Professor of Pediatrics.

PAUL WISE, MD, MPH
SAVING THE CHILDREN ON THE FRONTLINES OF WAR
Wise, who teaches *Global Public Health*, discusses the challenges of bringing medical care to children in some of the world's most war-torn regions. Wise is the Richard E. Berman Professor of Child Health and Society and Professor of Pediatrics and Health Policy.

CONGRATULATIONS
STUDENT ATHLETES!

WOMEN'S VOLLEYBALL
NATIONAL CHAMPIONS!

TAMI ALADE
AUDRIANA FITZMORRIS
ALEXIS FROISTAD
JENNA GRAY
KATHRYN PLUMMER

PAC-12 SCHOLAR-ATHLETE
OF THE YEAR
WOMEN'S VOLLEYBALL
TAMI ALADE

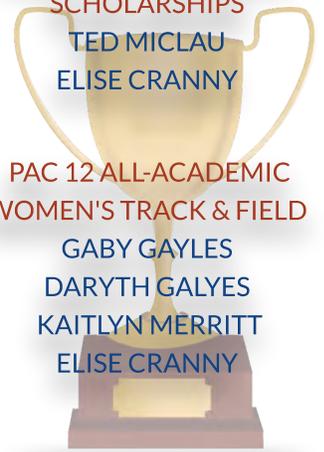
PAC-12 SCHOLAR-ATHLETE
OF THE YEAR
WOMEN'S CROSS COUNTRY
ELISE CRANNY

NCAA POSTGRADUATE
SCHOLARSHIPS

TED MICLAU
ELISE CRANNY

PAC 12 ALL-ACADEMIC
WOMEN'S TRACK & FIELD

GABY GAYLES
DARYTH GALYES
KAITLYN MERRITT
ELISE CRANNY



STUDENT WRITERS IN THE NEWS



Photo: Jane Mary Snyder

BRANDON BERGSNEIDER '20, and mentor Linda Liao wrote an invited commentary in Springer's current surgery reports called *Next-generation Sequencing and Personalized Medicine for Brain Cancer*.

ASTRID CASIMIRE '19, wrote Stanford Daily articles on various topics from *Holidays Around the World* to *Dealing with Natural Disasters Away from Home*.

NANCY CHANG '20, wrote the San Francisco Chronicle article: *Feed the Hungry and Fight Climate Change by Not Tossing Edible Food*.

CLAUDIA HEYMACH '19, wrote Stanford Daily articles covering a breadth of community activities and news.

TED MICLAU '18, wrote with mentors: *Orthopaedic Trauma in the Developing World* published in *Journal of Orthopaedic Trauma*.

BRITTANY STINSON '20, wrote a college application essay on Costco that went viral.

ACCOMPLISHED INSPIRED & INSPIRING

NICOLE TAYLOR, MA, HB '90
NAMED CEO OF SILICON VALLEY COMMUNITY
FOUNDATION

Nicole was named president and CEO of the Silicon Valley Community Foundation, which advances innovative philanthropic solutions to challenging problems in San Mateo and Santa Clara counties. Nicole said, "Silicon Valley is a region of contrasts, one in which deep social challenges are often masked by the high-profile innovations culture...I am excited about the issues and challenges the organization is looking to tackle." [Read more.](#)



Photo: Stanford News
Linda Cicero

ALUMNI NEWS

LIZZIE DORFMAN, PHD, HB '03
ARTIFICIAL INTELLIGENCE - PRECISION MEDICINE WORLD
CONFERENCE JANUARY 20, 2018

Lizzie is a Senior Technical Program Manager at Google. She is focused on using technology and AI to transform healthcare. Her talk *Precision Imaging: Reconceptualizing Problems and Solutions* will be on two computer vision technology examples from Google AI. The conference is being held in Silicon Valley. [Register here.](#)



ASHLEY BOREN, HB '83, EXECUTIVE DIRECTOR
SUSTAINABLE CONSERVATION MARKS 25TH ANNIVERSARY

Ashley has led Sustainable Conservation's efforts as Executive Director since 1997. On behalf of California's environment and people, the nonprofit ushered in legislation that phases out copper from vehicle brake pads to boost water quality and wildlife, and partnered with dairies to make them more water-wise. More achievements include helping protect coastal aquifers from fertilizer pollution, sponsoring legislation to accelerate habitat restoration statewide, and dramatically reducing the sale of damaging invasive plants through retailers like Home Depot. Sustainable Conservation brings together business, landowners and government to solve the tough challenges facing California's land, air and water resources. [Read more.](#)

RESEARCH

ALAN TEO, MD, HB '01
LONELINESS IS CLOSELY ASSOCIATED WITH DEPRESSION
OUTCOMES & SUICIDAL IDEATION AMONG MILITARY
VETERANS IN PRIMARY CARE

Alan's studies have demonstrated the potent effect of social contact and relationships on the risk for and course of psychiatric disorders in at-risk populations such as the elderly, ethnic minorities and military veterans. He is an expert on *hikikomori*, a phenomenon where people isolate themselves, sometimes for years, and is currently studying how depression care for military veterans can be improved by involving their close relations. He has looked at modes of social contact in older adults, and led a project to determine the feasibility of reaching recently deployed military veterans through Facebook ads, quantifying their extent of risk for psychiatric problems, and characterizing how they use social media. Alan is a Core Investigator in the VA HSR&D Center to Improve Veteran Involvement in Care and an Assistant Professor at Oregon Health & Science University. [Read more.](#)

KATE COURTNEY, HB'18
WORLD CHAMPION WOMEN'S ELITE CROSS COUNTRY
MOUNTAIN BIKING

Kate lived up to her mantra to *work hard, do what you love and believe anything is possible* and won her first world championship title. Get inspired by reading Kate's [blog](#).



Photo RedBullContent/Craig Duller

Powered People

Kaeche Liburd

Powerful Poetry

KAÉCHE LIBURD, HB '09
POWERED PEOPLE

Kaéche's poetry book is on accessing peace, navigating struggle, acknowledging personal agency and savoring sweet triumph. Kaéche is a Caribbean-American writer/actress.

Director's Message

What's in a major? Across the United States at our selective peer universities, as well as Stanford, there has been a shift of college majors away from the humanities and social sciences toward technology and the natural sciences. Some schools have questioned what is the nature of majors and even whether these are anachronistic?

Human Biology nevertheless remains steady as majors go. Our unique blend of social sciences and natural sciences, and sometimes the humanities, in the study of the human condition continues to produce accomplished, inspired and inspiring students and alumni, as these pages attest. Take a look! Sure, we have evolved since our first graduating class in 1971, with the recent addition of a B.S. major option as well as new minors in global health, epidemiology, and health policy. But, our "diversity and unity," to borrow a former Core lecture title from Professor Donald Kennedy, remain our strength as we head toward our 50th anniversary in October 2021. Yes, for Human Biology it's all right now. If you want to chat, you can find me at pfisher@stanford.edu



Paul Graham Fisher, '84
The Bing Director in Human Biology

The Dunlevie Family University Fellow in Undergraduate Education

The Beirne Family Professor of Pediatric Neuro-Oncology



TRAVEL WITH HUMBIO PROFS

BILL DURHAM: Galapagos Field Seminar September 9-22, 2019
(wait list)

JAMIE JONES: Gorillas and the Maasai Mara August 9-18, 2019
(wait list)

BOB SIEGEL: Pantanal July 19-29, 2019



**GOT STORIES? GOT NEWS? WANT TO LEAD A CAREER WORKSHOP?
HUMBIO WANTS TO HEAR FROM YOU!**

**JOIN & POST ON LINKEDIN, SHARE YOUR STORIES ON THE WEB,
SEND NEWS AND CAREER WORKSHOP INQUIRIES TO rduby@stanford.edu**

[HUMBIO ALUMNI LINKEDIN GROUP](#)

Now has over 1200 members.



[HUMBIO ALUMNI WEBSITE](#)

Is home to over 70 alumni stories.

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