



**ASU<sup>®</sup> Center for Evolution  
and Medicine**

**Arizona State University**

**Center overview**



# Mission

To improve human health by establishing evolutionary biology as an essential basic science for medicine, worldwide.

# Core Faculty

# Staff

Director—Randolph Nesse

Associate Director—Anne Stone

Assistant Director—Jennifer Vazquez

Education Programs Coordinator Sr.—Lenora Ott

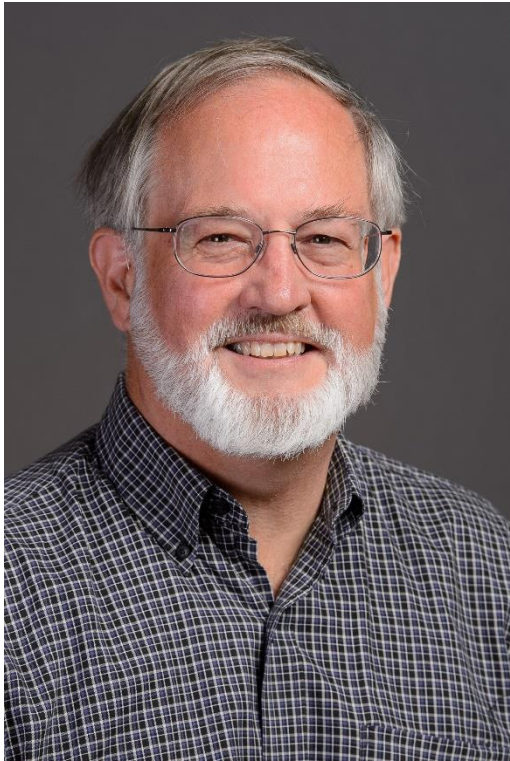
Business Operations Specialist—Jackie Smith

Communications & Events Coordinator— Jason Krell

Web Developer - Suhail Ghafoor

Communications & Office Assistant – Navinkumar Krishnan

# Randolph Nesse



Founding Director  
Center for Evolution & Medicine

Professor of Life Sciences  
Foundation Professor

## Current research

Physiological regulation systems vulnerable to failure because of asymmetric fitness landscapes or positive feedback causing chronic pain, anxiety, & depression

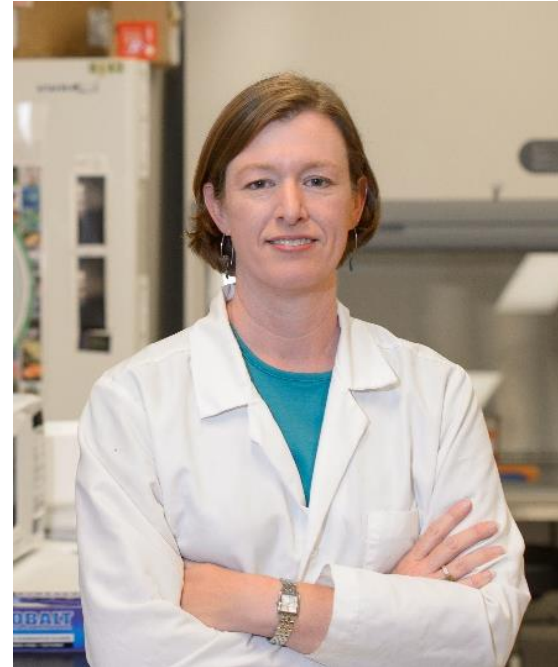
# Anne Stone

Associate Director  
Center for Evolution & Medicine

Professor, School of Human Evolution &  
Social Change  
Regents' Professor  
National Academy of Sciences member

## Current research

Anthropological genetics, focusing on population history and understanding how humans and the great apes have adapted to their environments, including their disease and dietary environments.



# Athena Aktipis



Assistant Professor  
Department of Psychology

Co-Director,  
Human Generosity Project

## Current Research

Cooperation and conflict in biological systems including cancer evolution and the human microbiome.

# Sara Brownell

Assistant Professor  
School of Life Sciences

## Current research

Integrating teaching and research in the context of course-based undergraduate research experiences. Developing tools for biology departments to more effectively teach core concepts in biology. Making evolution courses more inclusive for all students





# Kenneth Buetow



Professor  
School of Life Sciences  
Director, Computational Sciences and  
Informatics program for Complex Adaptive  
Systems

## Current research

Functional genomics and bioinformatics to  
understand complex traits such as cancer,  
liver disease, and obesity.

# Katie Hinde

Associate Professor  
School of Human Evolution & Social  
Change

## Current research

Lactation science looking at how  
variation in mother's milk and behavioral  
care influences infant outcomes.



# Magdalena Hurtado



Professor  
School of Human Evolution & Social Change

## Current research

Mortality reduction mechanisms in humans with emphasis on cultural niche construction and innate immunity.

# Jeffrey D. Jensen

Professor  
School of Life Sciences

## Current research

Developing theory and statistical methodology for describing and quantifying adaptation in natural and experimental populations



# Manfred Laubichler



Professor  
School of Life Sciences  
Director, ASU-Santa Fe Institute  
The Center for Biosocial Complex Systems  
Associate Director, Origins Project ASU

## Current research

Theoretical biology and history of science,  
evolutionary biology and complex adaptive  
systems.

# Melissa Wilson Sayres

Assistant Professor  
School of Life Sciences

## Current research

The evolution of sex chromosomes (X and Y in mammals), why mutation rates differ between males and females, and how changes in population history affect the sex chromosomes differently than the non-sex chromosomes. Wilson Sayres is also active in public science engagement and outreach.



# Jay Taylor



Associate Professor  
School of Life Sciences  
School of Mathematical and Statistical Sciences

## Current Research

Using both mathematical models and genetic sequence analysis to understand how populations evolve in complex and changing environments. He is particularly interested in the evolution of parasites that cause chronic infectious diseases such as malaria (*Plasmodium* spp.) and African sleeping sickness (*Trypanosoma brucei*).

# Benjamin Trumble

Assistant Professor  
School of Human Evolution & Social Change

## Current research

Using field and lab studies to examine how environmental conditions (parasites, diet, physical activity) impact chronic diseases of aging like Alzheimer's Dementia and Cardiovascular Disease





# Silvie Huijben



Assistant Professor  
Center for Evolution and Medicine

## Current Research

Evolution of drug resistance in general and in the context of malaria in particular. Understanding which factors are involved in driving resistance through the population and how they can be utilized this knowledge to maximize the useful life span of drugs and insecticides.

# Krijn Paaijmans

Assistant Professor  
Center for Evolution and Medicine

## Current research

Anopheline mosquitoes and the malaria parasites they transmit. Integrating laboratory experiments, field experiments and mathematical models to better inform current malaria control and elimination programs and to help developing appropriate adaptation or mitigation strategies for future climates.



# Postdocs



Angela Bond

Postdoctoral Research Associate

Development of the microbiome of the infant, immunological responses from the parent and infant, impacts of non-parental human milk on development of the immune response and microbiome.



Hallie Edmonds

Postdoctoral Research Associate

Studies feeding biomechanics and anatomy.



Alexandra Greenwald

Postdoctoral Fellow

Evolutionary anthropology, bioarchaeology, archaeometry, breastfeeding and early childhood diet, maternal and infant health, hunter-gatherers, behavioral ecology, life history, reproductive ecology, maternal time allocation, child foraging, diet

# Postdocs



**Dan Grunspan**  
Postdoctoral Research Associate  
Research on evolution education strategies, and assisting with development of online educational resources and CEM degrees



**Rebecca Harris**  
Postdoctoral Research Associate  
Interested in evolutionary biology with an emphasis on phylogenetic systematics and the evolution of traits in avian systems.



**Caley Johnson**  
Associate Research Professional  
Her research focuses on nutritional ecology - how primates meet their nutritional needs through complex methods of foraging in variable environments. The goal of this research is to inform the management and protection of primates and their habitats.

# Postdocs



Heini Natri

Postdoctoral Research Fellow

Uses a systems genetic approach to investigate tumor evolution, sex bias in cancer occurrence, and the genomic architecture of cancer.



Andrew Ozga

Postdoctoral Research Fellow

Interested in the impact of environment and diet on the primate and non-human microbiome and virome through time and space.



Andrew Sackman

Postdoctoral Research Associate

Gene interactions and compensatory evolution in phages. Novel statistical method development, as well as a continued focus on the analysis of experimental evolution data

# Affiliated units at ASU

- Biodesign Institute
- School of Life Sciences
- School of Human Evolution & Social Change
- Department of Psychology
- College of Health Solutions
- Institute for Human Origins
- Biosocial Complexity Initiative
- Adaptation, Culture Behavior and Society
- Obesity Solutions

# Alliances

- International Society for Evolution, Medicine & Public Health
- Mayo Clinic and Hospitals
- Banner University Hospitals
- Midwestern Medical School
- TriCEM at Duke
- University of Zurich Center for Evolutionary Medicine
- CARTA at UCSD



# Accomplishments

- CEM Venture Fund providing funding for multiple ASU projects
- Four faculty recruited
- Three education post docs recruited
- CEM Blog - featuring posts on current topics in EvMed by CEM faculty.
- EvMedEd.org launched as the world's online resource for EvMed education
- 100+ videos created from seminars and events and available online
- 30+ in-depth interviews with scholars being edited and posted to YouTube
- Created the EvMedNetwork with 700+ scientists, teachers, and students
- Founded the International Society for Evolution, Medicine & Public Health



# Web Development Projects

## EvMedEd.org

is a curated collection of education resources for evolutionary medicine including books, videos, websites and syllabi. It is sponsored by ISEMPH and the Center for Evolution & Medicine at ASU.

The Center also helps maintain [EvMedReview.com](http://EvMedReview.com), the field's nexus for news and opinion.

The screenshot shows the EvMedEd.org website homepage. At the top, there is a navigation bar with the EvMedEd logo and links for 'CONTRIBUTE', 'ABOUT', 'RESOURCES', and 'ADVANCED SEARCH'. Below the navigation bar is a search bar with the text 'Search all EvMed resources...' and a 'Search' button. The main content area features a large image of hands holding a DNA helix. Below this is a 'Welcome to EvMedEd!' section with a video thumbnail titled 'Tracking Ancient Diseases Using Plaque' and a text block describing the site as a curated collection of learning and teaching resources. The 'FEATURES' section includes a photo of a large meeting (2016 ISEMPH Meeting) and a book cover for 'Evolutionary Medicine' by Ruslan Medzhitov and Stephen Stearns. The 'RESOURCES' section includes three tiles: 'New Additions' with an owl image, 'EvMed Network' with a group photo, and 'Intro to the Field' with a medical professional image.

EvMedEd

CONTRIBUTE ABOUT RESOURCES ADVANCED SEARCH

Search all EvMed resources... Search

Welcome to EvMedEd!

EvMedEd is a curated collection of learning and teaching resources for students, teachers and interested people with backgrounds ranging from high school through senior physicians and researchers.

Video  
Tracking Ancient Diseases Using Plaque

EVOLUTION.

FEATURES

2016 ISEMPH Meeting  
The International Society for Evolution, Medicine & Public Health registration open now.

New EvMed Textbook  
Learn more about the new textbook by Stephen Stearns and Ruslan Medzhitov

RESOURCES

New Additions  
Most recently added items across categories.

EvMed Network  
Link to fellow researchers, events, local groups & jobs in evolutionary medicine.

Intro to the Field  
A place to start

# Past Major Events

- Symposium on Evolution and Global Health for The Lancet. October 2014
- *Are women superior to men? A panel discussion on evolution and sex differences*, featuring Mel Konner and Sarah Hrdy. August 2015
- Conference on Complex Systems 2015 Symposium: *What Complex Systems Theory offers to Evolutionary Medicine*. September 2015
- Steven Austad on Aging, a workshop in February 2016.
- Darwin Day featuring Lee Dugatkin, *The Evolution of Goodness, Justice, and Empathy*. February 2016
- American Association for the Advancement of Science (AAAS) Meeting Symposium: *Evolutionary Biology Impacts on Medicine and Public Health*. February 2016. Held in Washington, D.C.

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**Are women superior to men?**  
a panel discussion on evolution and sex differences

Featuring Dr. Mel Konner, author of  
*Women After All: Sex, Evolution & the End of Male Supremacy*  
**August 26, 2015**  
4:30pm reception, 5:00pm lecture  
Marston Theater, ISTB 4



Satellite session on:  
**What Complex Systems Theory offers to evolutionary medicine**  
Wednesday, September 30, 2015  
Open to paid registrants of the conference



ADVANCING SCIENCE, SERVING SOCIETY



# Past Major Events (contd.)

- Darwin Day featuring Barbara Natterson-Horowitz, *Not Uniquely Human*  
February 2017
- Symposium on Evolutionary medicine and complex adaptive systems.  
February 2017

**Not Uniquely Human**  
Darwin Day Lecture 2017  
with Barbara Natterson Horowitz M.D.  
February 9, 2017

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events

[evmed.asu.edu](http://evmed.asu.edu)