

# Adrian A. Smith

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Department of Entomology  
University of Illinois at Urbana-Champaign  
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## Education

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Arizona State University School of Life Sciences Center of Social Dynamics and Complexity, Tempe, AZ Ph.D. Biology Major Advisors: Dr. Bert Hölldobler and Dr. Jürgen Liebig	2006 – 2011
Florida State University Department of Biological Sciences, Tallahassee, FL Bachelor of Sciences, Biological Sciences	2002 – 2006

## Research Experience

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Postdoctoral Research Associate Dr. Andrew V. Suarez and Dr. Lawrence M. Hanks Dept. of Entomology, University of Illinois at Urbana-Champaign	2011- Present
Laboratory Assistant/ Independent Researcher Dr. Walter R. Tschinkel Dept. of Biological Sciences, Florida State University	2003 – 2006
Field Research Assistant Dr. Blaine J. Cole and Dr. Diane C. Wiernasz Dept. of Biology and Biochemistry, University of Houston, Houston, TX	2005

## Training

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Biomimicry Education Summit, The Biomimicry Institute Jackson Hole, Wyoming & San Francisco, California & Cleveland, Ohio	2009 - 2011
Ant Course, California Academy of Sciences Portal, Arizona	2009
Biomimicry and Design Workshop, The Biomimicry Guild Playa Uvita, Costa Rica	2009

## Teaching Experience

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### Lead Instructor & Curriculum Creator

Biology for Biomimics The Biomimicry Professional Certification Program, The Biomimicry Institute, online	Present
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### Lead Instructor & Curriculum Creator

BIO/IND 494/598 Biologically Inspired Design School of Life Sciences & The Design School, Arizona State University	2011
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### **Biomimicry Instructor & Teaching Assistant**

IND/GRA/MGT 464, Collaborative Design and Development I & II  
InnovationSpace, The Design School, Arizona State University 2009 - 2011

### **Laboratory Instructor**

BIO 201, Human Anatomy and Physiology I  
School of Life Sciences, Arizona State University 2008

BIO 187, General Biology I  
School of Life Sciences, Arizona State University 2007

BIO 100, The Living World  
School of Life Sciences, Arizona State University 2006

### **Service**

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Biomimicry Fellow  
The Biomimicry Institute  
Missoula, Montana; <http://biomimicryinstitute.org> 2009 - Present

Guest Instructor  
*Nature's Design Studio: A Biomimicry Workshop*  
Center for Teacher Success, Phoenix, AZ 2009 - 2010

Conference Organizing Committee Member  
Frontiers in Life Sciences Conference, Arizona State University  
Social Biomimicry: Insect Societies and Human design 2009 - 2010

Mentor  
Graduate Partners in Science Education (GPSE) / Science Investigators Club  
School of Life Sciences, Arizona State University  
Phoenix Preparatory Academy, Phoenix, AZ 2007 - 2009

President  
Animal Behavior Reading Group, Arizona State University 2007 - 2008

### **Refereed Publications**

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**Smith, A. A.**, Overson, R. P., Hölldobler, B., Gadau, J., Liebig, J. Submitted. The potential for worker reproduction in the ant *Aphaenogaster cockerelli* and its absence in the field.

Penick, C. A., Copple, R. N\*, Mendez, R. A., **Smith, A. A.** Submitted. The function of anchor-tipped larval hairs in the ant subfamily Myrmicinae. (\*undergraduate author)

**Smith, A. A.**, Hölldobler, B., and Liebig, J. In Press. Queen specific signals and worker punishment in the ant *Aphaenogaster cockerelli*: the role of the Dufour's gland. *Animal Behaviour* [Featured article]

**Smith, A. A.**, Hölldobler, B., and Liebig, J. 2011. Reclaiming the crown: queen to worker conflict over reproduction in *Aphaenogaster cockerelli*. *Naturwissenschaften*, 98: 237–240. [Cover article]

Holbrook, C. T., Clark, R. M., Moore, D., Overson, R. P., Penick, C. A., **Smith, A. A.** 2010. Social insects inspire human design. *Biology Letters*, 6: 431-433.

Cole, B. J., **Smith, A. A.**, Huber, Z. J., and Wiernasz, D. C. 2010. The structure of foraging activity in colonies of the harvester ant, *Pogonomyrmex occidentalis*. *Behavioral Ecology*, 21: 337-342.

**Smith, A. A.**, Hölldobler, B., and Liebig, J. 2009. Cuticular hydrocarbons reliably identify cheaters and allow enforcement of altruism in a social insect. *Current Biology*, 19, 79-81.

[Highlighted in: *Nature* and *Current Biology*. Featured on: BBC news, National Geographic News, Time.com, Times of India, Chemical & Engineering News, front page: asu.edu]

**Smith, A. A.**, Hölldobler, B., and Liebig, J. 2008. Hydrocarbon signals explain the pattern of worker and egg policing in the ant *Aphaenogaster cockerelli*. *Journal of Chemical Ecology*, 34, 1275-1282.

**Smith, A. A.** and Haight, K. L. 2008. Army ants as research and collection tools. *Journal of Insect Science*. 8, 71, available online: [insectscience.org/8.71](http://insectscience.org/8.71)

## Book Chapters

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**Smith, A. A.** and Fischer, H. 2011. Innovating from life. In *The Business of Sustainability: Trends, Policies, Practices, and Stories of Success*, ed. S. G. McNall, J. C. Hershauer, and G. Basile. Santa Barbara, CA: Praeger, pp. 313-328.

## Grants and Awards

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Profiled as an “outstanding graduate student” by Graduate College, ASU	2011
1 <sup>st</sup> Place & Best of Show, Creative Crafts – Metal working (zinc cast of Harvester ant nest), Arizona State Fair, \$5	2010
NSF- Animal Behavior. Social Biomimicry: Conference on Insect Societies and Human Design. One of six conference organizers (PI – Jennifer Fewell), \$16,838	2010
Research Grant, Graduate and Professional Students Association, ASU, \$750	2009
Graduate Initiative Fellowships for Training, School of Life Sciences, ASU, \$1,000	2009
Professional Development Travel Grant, Graduate and Professional Students Association, ASU, \$750	2009
Frontiers in Life Sciences Workshop Grant, School of Life Sciences, ASU, \$30,000	2008
Best Student Oral Presentation, North American Section – International Union for the Study of Social Insects, Puerto Rico Meeting	2008
Student Travel Grant, North American Section – International Union for the Study of Social Insects, Puerto Rico Meeting, \$100	2008
Conference Travel Grant, School of Life Sciences, ASU, \$350	2008
Research Grant, Graduate and Professional Students Association, ASU, \$1,524	2008
Conference Travel Grant, School of Life Sciences, ASU, \$300	2007

## Presentations

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<b>Smith, A. A.</b> , Hölldobler, B. and Liebig, J. Distinguishing death-marks from fertility signals in a desert ant. Behavior 2011. Bloomington, IN.	2011
<b>Smith, A. A.</b> Biology + Design. Biomimicry Education Summit. Cleveland, OH. ( <i>invited panelist</i> )	2011

- Smith, A. A.** Biology into design module: self-organization and group behavior. Biomimicry in Higher Education Webinar. The Biomimicry Institute. 2011
- Smith, A. A.,** Hölldobler, B. and Liebig, J. Reclaiming the crown: queen to worker punishment in the ant *Aphaenogaster cockerelli*. Congress of International Union for the Study of Social Insects, Copenhagen, DK. 2010
- Smith, A. A.** Biomimicry in a new product development classroom. Biomimicry Education Summit. San Francisco, CA. (*invited speaker*) 2010
- Smith, A. A.,** Hölldobler, B. and Liebig, J. Who should be queen? Queen to worker conflict over reproduction in ants. 10th Annual Symposium, Graduates in Earth, Life and Social Sciences, Tempe, AZ. 2009
- Smith, A. A.,** Hölldobler, B. and Liebig, J. Warranted aggression: the informational basis of physical policing in an ant society. North American Section – International Union for the Study of Social Insects, Arecibo, Puerto Rico. (*awarded best student presentation*) 2008
- Smith, A. A.,** Hölldobler, B. and Liebig, J. Disharmony in ant societies: Fertility signals and policing behavior regulate reproductive conflicts. 12<sup>th</sup> International Behavioral Ecology Congress. Ithaca, NY. 2008
- Smith, A. A.,** Hölldobler, B. and Liebig, J. Reproductive signaling and policing in the ant *Aphaenogaster cockerelli*. 9th Annual Symposium, Graduates in Earth, Life and Social Sciences, Tempe, AZ. 2008
- Smith, A. A.** and King, J. R. Poster: Observations on predation of the trap-jawed ant, *Odontomachus brunneus*, by *Formica archboldi*. Congress of International Union for the Study of Social Insects, Washington D.C. 2006

## **Public Media**

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### **Published Photographs - Scientific Publications**

Naturwissenschaften (cover: vol. 98, number 4, April 2011)  
 Encyclopedia of Animal Behavior  
 Biology Letters  
 Cold Spring Harbor Protocols (cover: vol. 4, issue 7)  
 Functional Ecology  
 Animal Behaviour  
 Current Biology  
 American Naturalist  
 Journal of Insect Science

### **Published Photographs - Popular Media**

boingboing.net  
 physorg.com  
 news.nationalgeographic.com  
 sciencedaily.com  
 focus.de  
 pubs.acs.org  
 sciencecentric.com  
 msnbc.msn.com

### **Television**

National Geographic/ Ammonite Production – *City of Ants* (2011)  
 KAET 8; ASU Research Review: *Social Interactions of Ants* (2008)

### **Radio**

NPR – KJZZ Phoenix, Morning Edition, February 8<sup>th</sup>, 2010. *Biomimicry Institute @ ASU*