

# WHY WE HOLD HANDS

Professor James Coan | 434-243-2322 | [jcoan@virginia.edu](mailto:jcoan@virginia.edu)

## Stuff

### About Me

I grew up in Spokane, Washington. As a first generation college student, I first earned an Associates Degree from Shoreline Community College in Seattle, then transferred to the University of Washington for a Bachelor of Science in Psychology. I did my PhD at the University of Arizona in Tucson in Psychology, with specialties in Neuroscience and Research Methodology, and started at UVA in 2005!

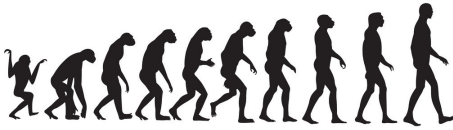
### Learning Objectives

- Understand the way natural selection has shaped the human brain and body to be fundamentally social.
- Grapple with the implications of our social nature for health, well being, and policy.
- Appreciate how different forces and time scales—from genetic evolution to the circumstances of any ordinary day—influence the function of simple acts like handholding.
- Learn about scientific perspectives on causal mechanisms, levels of analysis, and research design.

## Course Description



Why do we hold hands? If you think about it, it's a peculiar behavior. What is its function? What does it accomplish? Why do so many people all around the world do it? I hadn't given it much thought until I embarked on the scientific study of how—at the level of brain function—people soothe each other's fears and anxieties. In my early work, hand holding was little more to me than a convenient way to study social support in the restrictive environment of the brain scanner. But as the years, and studies, have gone by, a deeper understanding of simple hand holding has unlocked for me many of the secrets of our shared humanity—and helped me explain why, for humans, social isolation is the quickest route to misery, poor health, and even early death. We'll use the mystery of hand holding as our point of departure on a scientific journey toward understanding the way social relationships affect our earliest sensory experiences, the length of our lives, and everything in between. We'll also explore the likeliest theories about the evolution of *Homo sapiens*, and how that evolution is reflected in the structure and function of the human brain.



## The Engagement Context

This **Empirical Engagement** course will explore the evolution and development of the human brain and body while illustrating the many ways in which scientific questions are formulated and empirical evidence is gathered and interpreted. Many models of how Homo Sapiens evolved are still being debated, and definitive answers are hard to come by. But most agree that, whatever their ultimate origin, humans are uniquely social animals whose capabilities include—and may have required—communication through channels as diverse as language, gesture, eye-gaze, song, dance and visual art.

Amazingly, the simple question “why do we hold hands?” leads us almost inevitably to the question of what kind of *animal* humans are. Our scientific journey will include learning what research can teach us about this question, but we’ll also engage in *experiences* that illustrate what it is to be human, and use all of the above to wrestle with tricky questions of policy and ethics.

My hope is to reveal science as a philosophy and worldview, rather than a collection of techniques, while also illustrating how experience, aesthetics, and ethics inform, and are informed by, the scientific approach to understanding.

## Course Requirements

In order to solve the puzzle of hand holding, this course will provide a representative sampling of the theoretical and empirical literature constituting the developing study of human social relationships, from evolutionary, ecological, aesthetic, experiential, and neuroscientific perspectives. Class time will consist of class discussions, and (very) frequent writing assignments.

## Readings

There is no textbook for this course. Or rather, **all of the readings have been made by me**, written and drawn by hand on my iPad. My hope is that they will be as enjoyable for you to read as they were for me to make, and that you can use them to talk together, bond with each other, and create work of your own, just as you were shaped by natural selection to do.

## Evaluation

Your grade will be determined by your **Questions**, **Reflections**, and discussion **Participation**, all of which are described in more detail below. Earning points is both super easy and super hard. **No exams or quizzes**, but I ask you to do *a lot of stuff*, both in class and out. The more you participate, the more fun it’ll be!

## Questions

Students will send 2 **Questions** (1 point each) based on assigned readings to the instructor 24 hours before the class session during which those readings will be discussed. So, that means you’ll send me your **Questions** (via the collab Forum tab) for, say, January 14th’s readings at or before class time (12:30 am) on January 13. Otherwise, no credit! See? **Your Questions account for 40% of your grade.**

## Reflections

The last 15 minutes of each class period (and however much time you need after that) will be spent filling **at least 3 handwritten pages** with your **Reflections** on the material we’ve read about and discussed. For **Reflections**, I recommend you purchase an 80-page [“Original” Marble Notebook](#) and some [colorful pens!](#) You may write in standard prose, in poetry, make drawings with

## Grading

The highest total score attained by any student in the class will become the reference score for grading. The student(s) with this highest total score will receive a grade of 100%. All other students will receive a percentage grade based upon this highest score, and the following scale will be applied:

|        |      |
|--------|------|
| 100%   | = A+ |
| 95-99% | = A  |
| 90-94% | = A- |
| 87-89% | = B+ |
| 83-86% | = B  |
| 80-82% | = B- |
| 77-79% | = C+ |
| 73-76% | = C  |
| 70-72% | = C- |
| 67-69% | = D+ |
| 63-66% | = D  |
| 60-62% | = D- |
| < 60%  | = F  |

captions, or whatever makes you feel most engaged. (Make an ongoing comic book out of your class notes! What?) Within 24 hours of class, you will upload images of your **Reflections**, numbered and dated, to the Forum utility in collab, to share with me and the class. **Your Reflections account for 40% of your grade.**



Plain ol' Marble Notebook!

## Participation

**Participation** will be judged in terms of how frequently you interact with the instructor and/or class mates regarding the material. These interactions can be during class, or outside of class via collaborative tools on the course collab site (e.g., forums, chat). **Your Participation accounts for 10% of your grade.**

*“Concepts can never be presented to me merely, they must be knitted into the structure of my being, and this can only be done through my own activity.”*

— M.P. Follett, *Creative Experience* (1930!)

## Engagement Lab

**Lab will account for the final 10% of your grade.**

## Incompletes

Short of major medical illness or global catastrophe, there is virtually no reason to award an incomplete grade for this course. Incompletes typically move a crisis from one time to another.

## Academic Integrity

Any academic fraud committed by a student in this class will result in the submission of an academic fraud case to the Honor Committee of the University of Virginia. It is each student's responsibility to know what constitutes academic fraud and to behave in accordance with the policies of the Honor Committee. Information about these policies can be found at <http://www.virginia.edu/honor/>.

## Schedule of Classes and Readings

*We Move Lightly*, by Dustin O'Halloran

### Part 1 — The Art of the Soluble

*"If politics is the art of the possible, research is surely the art of the soluble. Both are immensely practical-minded affairs."* — Peter Medawar

|      |                                  |                                      |
|------|----------------------------------|--------------------------------------|
| 3/22 | Principles of Scientific Inquiry | <i>John Boy</i> , by Brad Mehldau    |
| 3/24 | Tinbergen's Four Questions       | <i>Black Forest</i> , by Paul Winter |

### Part 2 — 12 Watts

*"Our brain draws only 12 Watts, like a refrigerator light bulb, and fills a volume only slightly greater than a milk carton, yet it out-thinks a supercomputer that draws millions of Watts and fills a room. To achieve this level of efficiency, natural selection has shaped every aspect of neural design for economy and integration."* — Peter Sterling

|      |   |  |
|------|---|--|
| 3/31 | A beginners guide to the human brain      | <i>Excerpt From Music for 18 Musicians</i> , arr. Patrick Zimmerli |
| 4/05 | Perception, action, and economy of effort | <i>Mask: Movement 2</i> , by Vangelis                              |

### Part 3 — Natural Cooperation

*"Perhaps the most remarkable aspect of evolution is its ability to generate cooperation in a competitive world. Thus, we might add 'natural cooperation' as a third fundamental principle of evolution beside mutation and natural selection."* — Martin Nowak

|      |   |   |
|------|---|---|
| 4/07 | Varieties of relational experience                    | <i>My Ruthless Companion</i> , by Mahsa Vahdat feat. Kronos Quartet |
| 4/12 | Human economies of scale I: Cooperation and Resources | <i>Powerhouse</i> , by Raymond Scott, perf. Don Byron               |

**Part 4 — With Hands Dabbled In Blood**

*"When liberty comes with hands dabbled in blood it is hard to shake hands with her."* — Oscar Wilde

|      |  |  |
|------|--|--|
| 4/14 | Human violence and aggression / Love and War | – <i>The Further You Go, The Less You Know</i> , by David Darling<br>– <i>Goodnight Saigon</i> , by Billy Joel |
|------|--|--|

**Part 5 — Stronger Bodies, Bigger Brains**

*"With others ... to help, mothers are able to provision their youngsters, who in turn can afford the luxury of growing up slowly, building stronger bodies...and bigger brains..."*  
— Sarah Blaffer Hrdy

|      |   |  |
|------|---|--|
| 4/19 | Cooperative breeding and human cognitive evolution. | <i>Mask: Movement 4</i> , by Vangelis  |
| 4/21 | Self-Domestication                                  | <i>Be Ye Lamps Unto Yourselves</i> , the Buddha, from the Mahaparinibbana Suttana, Perf. Chancel Choir |

**Part 6 — Ghosts In The Machine**

*"Man need not be degraded to a machine by being denied to be a ghost in a machine."*  
— Gilbert Ryle

|      |  |  |
|------|--|--|
| 4/26 | What is The Self and who is The Other? | <i>Mask: Movement 6</i> , by Vangelis  |
| 4/28 | Ghosts and Spirits, Ancestors and Gods | <i>Southwell</i> , All Day Sacred Harp Singing at Stewart's Chapel in Houston, MS<br>Video: <a href="#">Parisians watching Notre Dame Cathedral burn</a> |

**Part 7 — Strength Knows How To Yield**

*“Insight sees the insignificant. Strength knows how to yield.” — Lao Tzu*

|      |  |  |
|------|--|--|
| 5/03 | Human Economies of Scale II: Social Regulation of the Mind | <i>Echorus</i> , by Philip Glass             |
| 5/05 | Why we hold hands  | <i>The Beatitudes</i> , by Vladimir Martynov |

**The End**

*The Air That I Breathe*, by The Hollies

*“Now join hands, and with your hands your hearts.”*

*~ William Shakespeare*

*“Sometimes, all I need is the air that I breathe and to love you.”*

*~ The Hollies*