

EEEEBGU4321  
HUMAN NATURE: DNA, RACE & IDENTITY:  
OUR BODIES, OUR SELVES?  
Spring 2019  
Wednesdays, 2:10-4pm  
Room Hamilton Hall 607

Faculty:

Marya Pollack, MD MPH, Assistant Clinical Professor of Psychiatry  
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Robert Pollack, PhD, Professor of Biology  
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**Description of the course:**

This 4-point seminar on Human Identity is taught from the perspective of four different disciplines; Law, Religion, Science, and Medicine. EEEB GU4321 Human Nature: DNA, Race & Identity fulfills requirements for majors in the Department of EEEB, Biology, Medicine, Literature, and Society; offered by the Institute in Comparative Literature and the major and concentration in Sustainable Development offered by the Earth Institute. It is cross-listed with the Center for the Study of Ethnicity and Race and The Center for Science and Society. In addition, it counts as an elective for students in Biology, Engineering, and Bioethics. The seminar is also part of a four-week elective for fourth year medical students at Columbia University Vagelos College of Physicians and Surgeons.

The course focuses on human identity, covering the individual over the lifespan and expanding to communal and global viewpoints using a framework of perspectives from biology, genetics, medicine, public health, psychiatry, religion and the law. GU4321 evolved from a Columbia College Core Capstone course INSM4321 in 2009 which in turn was developed initially from a Ford Foundation grant.

**\*Please note recommended books on reserve are in Butler Library, and that additional web sites and optional multidisciplinary events are found on the Canvas website.**

As a graduate level course, it is open to interested undergraduates and graduate students including those from the Medical Center campus.

Columbia University is dedicated to facilitating equal access for students with disabilities. Please let one of the instructors know in advance through the Office of Disability Services if you need special accommodations because of a disability.

**Format:**

Each class will be a presentation by students of the readings, and a discussion facilitated by the instructors, with ample opportunity for the whole class to participate in an open and non-judgmental discourse of the topic at hand. Laptops are to be kept closed during class unless prior arrangements are made for a special accommodation. Please keep all cell phones on vibrate. A 5-10 minute break will be held after the first hour. Please notify the instructors in advance if you must miss a class.

Grading will be based on class participation (30%); grades from two short 5 page response papers during the semester based on assigned readings (20% each, 40% total); and a final paper of 8-10 pages due at the end of the term (30%). All papers are expected to be handed in **on time**.

**Format for Response Papers:**

Students will be asked to write two short papers (5 pages, double spaced, 12 point font) during the course of the semester. For each paper students should respond to a specific article, or set of articles relating to one subject, that appears on the reading list. References should be made within the paper; e.g. (Johnson, 45).

The first paper is due **2/20/19**.

The second paper is due **4/3/19**.

**Format for Final Papers:**

Final papers of the semester (10 pages, double spaced, 12 point font) should reflect a more in depth perspective of the topics covered in class and in addition, we ask you to describe how the class has changed some aspect of how you identify yourself. The final paper is due **5/3/19**. \*(2/28/19 for medical students only)

**Fourth Year Medical Students:**

Please refer to the Columbia University Vagelos College of Physicians and Surgeons' Elective Catalog at <https://oasis.cumc.columbia.edu>. The course is currently listed under NYPH: MD28P, with a link to the course description and format and is offered every February and October. Please also refer to the **Canvas** site for further information or email the Director, Dr. Marya Pollack, at [mp23@cumc.columbia.edu](mailto:mp23@cumc.columbia.edu). Medical students should attend the first class if possible and are invited to come to any additional class after they complete the elective as their schedule permits.

**\*Prior to each class, students email the professors their choice of paper/s they wish to present by Sunday night the week before the next class. Please come to each class having done all the required readings in preparation for small group discussion.**

**Office Hours:**

Prof. Robert Pollack is available Tuesdays and Thursdays from 2-4pm in his office located on the second floor of Faculty House at 64 Morningside Drive. Dr. Marya Pollack is available in person by appointment only, please email her at [mp23@cumc.columbia.edu](mailto:mp23@cumc.columbia.edu).

## Schedule of Classes:

### 1. Defining One's Identity: *Who Am I?* -1/23

#### Introduction and Overview of the Course: Self Identification

##### Assigned Readings:

**Douglass, F.**, "The Composite Nation" Boston, 1869.

**Pollack, A.**, Chapter 1, "*The Course of Nature: A Book of Drawings on Natural Selection and its Consequences.*" 2014.

**Schwartz, D.**, "In Dreams Begin Responsibilities," from *In Dreams Begin Responsibilities and Other Stories.* New Directions: NY 1978.

**Whitman, W.**, "One's Self I Sing," from *Leaves of Grass*, [www.gutenberg.org](http://www.gutenberg.org) 2012.

**Williams, P.**, "On Being the Object of Property," *Journal of Women in Culture and Society*, vol. 14, No.1, pp.5-24, 1988.

##### Recommended Readings:

**Pollack, A.**, "*The Course of Nature: A Book of Drawings on Natural Selection and its Consequences.*" 2014. (on reserve)

### 2. Human Origins: *Where Do I Come From?* -1/30

##### Assigned Readings:

**Caspari, R.**, "Human Origins: the evolution of grandparents," *Scientific American* Aug 2011, pp. 45-49.

**Darwin, C.** "On the Origin of the Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life," Chapter 14, 24 Nov 1859.

**Fernyhough, C.** "Talking to Ourselves," *Scientific American*, Aug 2017, p.74.

**Gage, F.H., and Muotri, A.R.**, "What Makes Each Brain Unique," *Scientific American* Mar 2012.

**Lederberg J., and Lederberg E.M.**, "Replica Plating and Indirect Selection of Bacterial Mutants," *Univ. of Wisconsin*, 31 Aug. 1951.

**Pollack, A.**, Chapters 8 and 9, "*The Course of Nature: A Book of Drawings on Natural Selection and its Consequences.*" 2014.

**Pollard, K.S.**, "What Makes Us Human?" *Scientific American* May 2009, pp. 44-49.

**Stringer, C., and Galway-Witham, J.**, "How did Homo sapiens evolve?" *Science* 22 Jun 2018, Vol 360 pp.1296-1298.

**Watson, J.D., and Crick, F.H.C.**, "Molecular Structure of Nucleic Acids: A Structure for Deoxyribose Nucleic Acid," *Nature* vol. 171, pp.737-738, 25 April 1953.

### 3. Phenotype vs. Genotype: *Am I My DNA?* - 2/6

##### Assigned Readings:

**Hale, M.**, "Review: In 'No Más Bebés,' Forced Sterilizations at an American Hospital," 31 Jan 2016.

**Lehrman, S.**, "The Reality of Race," Profile of Troy Duster, PhD, *Scientific American*: Feb 2003.

**Gannon, M.**, "Germany to probe Nazi-era medical science," *Science*, 6 Jan 2017.

**Marx, P.**, "About Face: *Why is South Korea the world's plastic-surgery capital?*" *The New Yorker*, 23 Mar 2015.

**Severson, K.**, "Thousands Sterilized, a State Weighs Restitution," *NYT*: 9 Dec 2011.

**Singal, J.**, “When Children Say They’re Trans,” The Atlantic, Jul/Aug 2018.  
<https://www.theatlantic.com.ezproxy.cul.columbia.edu/magazine/archive/2018/07/when-a-child-says-shes-trans/561749/>

**Velasquez-Manoff, M.**, “What Doctors Should Ignore,” NYT: 8 Dec 2017.  
<https://nyti.ms/2BML6EC>

**Yudell, M.**, “Taking Race out of human genetics,” Science 351:564, 2016.

Illustrations:

**A Series of Embryos of Different Vertebrates** (From Romanes, adapted from Haeckel)

**Overview of the Admissibility of Marriage Between Aryans and Non-Aryans** (Zeitschrift für Ärztliche Fortbildung, 33 (1936).

Recommended Readings:

**Jablonski, N.G.**, “The evolution of human skin and skin color.” Ann. Rev. Anthropol. 33:585-623 2004.

**Nelson, A.**, “Bio Science: Genetic Genealogy Testing and the Pursuit of African Ancestry,” Social Studies of Science 2008; 38; 759.

**Talbot, M.**, "About A Boy; Transgender Surgery at Sixteen," The New Yorker: 18 Mar 2013.

**The Nuremberg Code**, Trials of War Criminals before the Nuremberg Military Tribunals under Control Council Law No. 10, Vol. 2, pp 181-182. Washington D.C.: US Government Printing Office, 1949.

#### 4. Epigenetic Interdependency-2/13

Assigned Readings:

**Furey, T.S., Sethupathy, P.**, “Genetics Driving Epigenetics,” Science (342) 8 Nov 2013.

**Klonisch, T. and Drouin, R.** “Fetal-Maternal Exchange of Multipotent Stem Progenitor Cells: Microchimerism in Diagnosis and Disease,” Review Cell Press: 12 Oct 2009.

**Love, S.**, “My Grandparents Survived the Cultural Revolution: Have I Inherited Their Trauma?” Mosaic 13 Dec 2016.

**McCarrey, J.R.**, “The epigenome-a family affair,” Science (350) 6 Nov 2015.

**Nestler, E.J.**, “Hidden Switches In The Mind,” ScientificAmerican.com, Dec 2011.

**Parylak, S.L., Deng, W., Gage, F.M.** “Mother’s milk programs offspring’s cognition,” Nature Neuroscience, Vol 17(1) Jan 2014.

**Zimmer, C.**, “Can a Parent’s Life Experience Change the Genes a Child Inherits?”  
<https://www.theatlantic.com/science/archive/2018/06/mothers-laugh-excerpt/562478/>

#### 5. Doctor-Patient Interdependency-2/20

**(First Paper Due)**

Assigned Readings:

**Aronson, A.**, ““Good” Patients and “Difficult” Patients, Rethinking Our Definitions,” NEJM 369:9, 29 Aug 2013.

**Fadiman, A.**, *The Spirit Catches You and You Fall Down: A Hmong Child, Her American Doctors, and the Collision of Two Cultures*. New York: Farrar, Straus and Giroux. 1997, pp. 250-261.

**Fox, M.**, “Life Went On Around Her, Redefining Care by Bridging a Divide,” NYT 14 Sep 2012.

**Gawande, A.**, “The Hotspotters,” The New Yorker, 24 Jan 2011.

**Groopman, J.**, “What’s the Trouble: How Doctors Think,” The New Yorker, 29 Jan 2007.

**Hartzband, P., and Groopman, J.,** “The New Language of Medicine,” NEJM: 13 Oct 2011.  
**Moniz, T., Lingard, L., and Watling, C.,** “Stories Doctors Tell,” JAMA, 11 Jul 2017.  
**Obermeyer, Z., Lee, T.H.,** “Lost in Thought-The Limits of the Human Mind and the Future of Medicine,” NEJM 28 Sep 2017  
**Schwartzstein, R.M.,** “Getting the Right Medical Students-Nature versus Nurture,” NEJM 23 Apr 2015.

#### 6. Disease vs. Illness: *Am I My Diagnosis?* -2/27

Assigned Readings:

**Charlton, B.,** “Defining My Dyslexia,” NYT: 22 May 2013.  
**Kandel, E.,** “The New Science of Mind,” NYT: 6 Sep 2013.  
**Kendell, R.E.,** “The distinction between mental and physical illness,” Brit. J. of Psych., 178, 490-493. (2001).  
**Ostrander, M.,** “What Poverty Does to the Young Brain,” The New Yorker, 4 Jun 2015.  
**Parker, M.,** “How to Stay Sane While Black,” NYT, 19 Nov 2016.  
**Scully, J.L.,** “What is a disease?” EMBO reports Vol 5: No. 7, 2004.  
**Wexler, N.,** “The Tiresias complex: Huntington’s disease as a paradigm of testing for late-onset disorders,” FASEB J 6:2820 (1992).

#### 7. Genetic Modification: *Eugenics?* -3/6

Assigned Readings:

**Baltimore, D. et al.,** “A prudent path forward for genomic engineering and germline gene modification,” Science 348, 36 (2015).  
**Caspi, A.** “Role of genotype in the cycle of maltreated children” Science 297: 85, 2002.  
**Cobb, M.,** “The Brave New World of Gene Editing,” NY Review of Books, 2017.  
**Comfort, N.,** “Can We Cure Genetic Diseases Without Slipping Into Eugenics?” Nation, 16 July 2015.  
**Doudna, J. and Chapentier, E.,** “The new frontier of genome engineering with CRISPR-cas9,” Science 248:1077 (2014)  
**Kahn, J.,** “The Crispr Quandry,” NYT: 9 Nov 2015.  
**Moreno, J., Gearheart, J., Zoloth L., Pyeritz, R., and Zaret, K.,** “Managing cell and human identity,” Science 356:6334 (2017)  
**Pollack, R.,** “Eugenics lurk in the shadow of CRISPR,” Letter to the Editor, Science (348) 22 May 2015.  
**Specter, M.,** “The Gene Hackers,” The New Yorker, 16 Nov 2015.

Recommended Readings:

**Joel, D., Berman, Z., Tavor, I., et al.** “Sex beyond the genitalia: The human brain mosaic.” [www.pnas.org/cgi/doi/10.1073/PSAS/1509654112](http://www.pnas.org/cgi/doi/10.1073/PSAS/1509654112)  
**Haapaniemi, E., Botla, S., Persson, J., Schmierer, B., and Taipale, J.,** “CRISPR-Cas9 genome editing induces a p53 mediated DNA damage response,” Nature Medicine, Vol 24, pp. 927-930. Jul 2018.  
**Pollack, A.,** Chapter 10, “*The Course of Nature: A Book of Drawings on Natural Selection and its Consequences.*” 2014.  
**Schoonover, C.,** *Portraits of the MIND: Visualizing the Brain from Antiquity to the 21<sup>st</sup> Century.* New York: Abrams. 2010. (on reserve)

## 8. Artificial Reproductive Technologies: *Are You My Mother/Father?* -3/13

### Assigned Readings:

- Batumen, E.**, “A Theory of Relativity,” *The New Yorker*, 30 Apr 2018.  
<https://www.newyorker.com/magazine/2018/04/30/japans-rent-a-family-industry>
- Buckley, C.**, “China to End One-Child Policy, Allowing Families Two Children,” *NYT* 29 Oct 2015.
- De La Cruz, D.**, “Should young women sell their eggs?” *NYT* 20 Oct 2016. <http://nyti.ms/2elEJQv>
- Dolan, S.B., Goldwaser, T., Jundal, S.G.**, “Preimplantation Genetic Diagnosis for Mendelian Conditions,” *JAMA* 5 Sep 2017.
- El Kouri, Z.**, “Double-Take: The Girl with the Levantine Eyes,” *Brain-Child Magazine* 2013.
- Koszynski, A.** “Her Body, My Baby,” *The New York Times Magazine*: 30 Nov 2008.
- Lewin, T.**, “Babies From Skin Cells? Prospect Is Unsettling to Some Experts,” *NYT* 16 May 2017. <https://nyti.ms/2ro5EhG>
- Mroz, J.**, “One Sperm Donor, 150 Offspring,” *NYT*: 5 Sep 2011.
- Padawer, R.** “Losing Fatherhood,” *The New York Times Magazine*: 22 Nov 2009.
- Sackheim, M.G.**, “Eradicating a Genetic Mutation,” *JAMA* 28 Feb 2017.
- Wong, E.**, “One-Child Rule is Gone in China, but Trauma Lingers for Many,” *NYT* 30 Oct 2015.

### Recommended Readings:

- Jordan, E.**, “An Awful Alternative to Work-Study,” *Columbia Spectator*: 30 Nov 2008.
- Padawer, R.**, “The Two-Minus-One Pregnancy,” *The New Times Magazine*: 10 Aug 2011.
- Spar, D.**, “The Egg Trade-Making Sense of the Market for Human Oocytes,” *NEJM* 29 Mar 2007.

## 9. Genomic Medicine: *Do I Own My Genes?* 3/27

### Assigned Readings:

- Guerrini, C.J., McGuire, A.L., and Majumder, M.A.**, “Myriad take two: Can genomic databases remain secret?” *Science*, Vol 356, 12 May 2017.
- Harmon, A.**, “Indian Tribe Wins Fight to Limit Research of Its DNA,” *NYT*: 21 Apr 2010.
- Kolata, G.**, “The Online Gene Test Finds a Dangerous Mutation. It May Well Be Wrong.” **NYT**, 2 Jul 2018. <https://nyti.ms/2IPNZyl>
- Lander, E.S.**, “Cutting the Gordian Helix-Regulating Genomic Testing in the Era of Precision Medicine,” *NEJM* 17 Feb 2015.
- Liptak, A.**, “Justices, 9-0, Bar Patenting Human Genes,” *NYT*: 13 June 2013.
- Sackheim, M.G.**, “Eradicating a Genetic Mutation,” *JAMA*, 28 Feb 2017.
- Skloot, R.**, “The Tissue-Industrial Complex,” *NYT*: 16 Apr 2006
- Williams, P.**, “How Our Genetic Maps Are Being Sold to the Highest Bidder,” *The Nation*, 2012.

### Henrietta Lacks:

- Callaway, E.**, “Deal done over HeLa cell line,” *Nature*: 8 Aug 2013.
- Skloot, R.**, “The Immortal Life of Henrietta Lacks-Excerpt,” *NYT*: 3 Mar 2010.
- Skloot, R.**, “The Immortal Life of Henrietta Lacks, the Sequel,” *NYT*: 23 Mar 2013.
- Zimmer, C.**, “A Family Consents to a Medical Gift, 62 Years Later,” *NYT*: & Aug 2013.

### Recommended Readings:

**Genetic Information Non-discrimination Act of 2008. (GINA)**

**Glossary of Genomics Terms**, JAMA 10 Apr 2013.

**Green, R.C., Lautenbach D., and McGuire, A.L.**, "GINA, Genetic Discrimination, and Genomic Medicine," NEJM 29 Jan 2015.

**Skloot, R.**, *The Immortal Life of Henrietta Lacks*. Crown. 2010. (on reserve)

#### 10. Stigma: *Do Medications Change Who I Am?* 4/3

(Second Paper Due)

Assigned Readings:

**Brown, M.T., and Bussell, J.K.**, "Medication Adherence: WHO Cares?" Mayo Clin Proc., 86(4):304-314. Apr 2011.

**Logan, L.**, "The Problem With How We Treat Bipolar Disorder," NYT: 26 Apr 2013.

**Schwartz, A.**, "Drowned in a Stream of Prescriptions," NYT: 3 Feb 2013.

**Sommerville, L.H.**, "Searching for Brain Maturity: What Are We Searching For?" Neuron 92, 21 Dec 2016.

Recommended Readings:

**Cohen, R.**, "The Competition Drug" NYT: 4 Mar 2013.

**Schwartz, A.**, "The Selling of Attention Deficit Disorder," NYT: 14 Dec 2013.

Recommended Personal Stories:

**Holland, J.** *Weekends at Bellevue*. pp.295-7.

**Jamison, K.R.** *An Unquiet Mind: A Memoir of Moods and Madness*. New York: Vintage Books, 1995. pp. 190-216.

**Luhrman, T.M.** *Of Two Minds*. New York: Vintage House, 2000. Pp3-24, 203-238, 266-29

**Solomon, A.** *The Noonday Demon: An Atlas of Depression*. New York: Touchstone, 2002. pp. 15-38.

**Styron, W.** *Darkness Visible: A Memoir of Madness*. New York: Vintage Books, 1990. (on reserve)

**Traig, J.** *Devil in the Details: Scenes from an Obsessive Girlhood*. New York: Little, Brown, 2004. pp. 23-37.

#### 11. Global Interdependency-4/10

Assigned Readings:

**Gillis, J.**, "Heat-Trapping Gas Passes Milestone, Raising Fears," NYT 10 May 2013.

**Ogden, L. et al.**, "Global assemblages, resilience, and Earth Stewardship in the Anthropocene," Front Ecol Environ 2013; 11(7)

**McKibben, B.**, "How Extreme Weather is Shrinking the Planet," The New Yorker, 28 Nov 2018.

<https://www.newyorker.com/magazine/2018/11/26/how-extreme-weather-is-shrinking-the-planet>

**Sarrazin, F., and Lecomte, J.**, "Evolution in the Anthropocene," Science, 26 Feb 2016.

**Vigo, D., Thornicroft G., and Atun, R.**, "Estimating the true global burden of mental illness," The Lancet Psychiatry, Feb 2016.

**Vince, G.**, "An Epoch Debate," Science, Vol. 334, 7 Oct 2011.

**Wilson, E.O.**, "Beware the Age of Loneliness," The Economist, 18 Nov 2013.

Recommended Readings:

**Laudato Si'** Encyclical Letter by Pope Francis, 24 May 2015.

**Tost, H., Champagne, F.A., Meyer-Lindenberg, A.**, "Environmental influence in the brain, human welfare and mental health," Nature Neuroscience (18) Oct 2015.

## 12. De-humanizing: *Do I Have a Right Over My Body?* -4/17

### Assigned Readings:

**Field, G.**, "Should Parents of Children with Severe Disabilities Be Allowed to Stop Their Growth?" NYT 22 Mar 2016 <http://nyti.ms/1XJACdT>

**Gibbs, N.** "Pillow Angel Ethics Parts I and II", Time Magazine Jan 2007.

**McBryde Johnson, H.** "Unspeakable Conversations Or How I Spent One Day as a Token Cripple at Princeton University," NYT: 16 Feb 2003.

**Singer, P.**, "Happy Nevertheless," The Lives They Lived, NYT: 28 Dec 2008.

**Specter, M.**, "The Dangerous Philosopher," The New Yorker: 6 Sep 1999.

**Universal Declaration of Human Rights**, Articles, 19, 20 and 27.

### Recommended Websites:

**Carlson, D. and Dorfman, D.** "Investigative Report Regarding the Ashley Treatment." May 2007.

*Disability Rights Washington*

*PillowAngel.org*, (blog by Ashley's parents)

## 13. Microbiome Interdependency: *Am I What I Eat?* -4/24

### Assigned Readings:

**Brody, J.**, "Unlocking the Secrets of the Microbiome," NYT 6 Nov 2017.

**Eakin, E.**, "The Excrement Experiment: treating disease with fecal transplants," The New Yorker: 1 Dec 2014.

**Gophna, U.**, "The Guts of Dietary Habits," Science, Vol. 334, 7 Oct 2011.

**Grady, D.**, "Placenta and Maternal Microbiome," NYT 2016.

**Heijtz, R.D., et al**, "Normal gut microbiota modulates brain development and behavior," PNAS 15 Feb 2011. pp. 3047-3052.

**Perez-Muñoz, M.E., et al**, "A critical assessment of the 'sterile womb' and 'in utero colonization' hypothesis: implications for research on the pioneer infant microbiome." *Microbiome* (2017) 5:48.

**Pollan, M.**, "Some of My Best Friends Are Germs," NYT: 15 May 2013.

**Specter, M.**, "Germs Are Us," The New Yorker: 22 Oct 2012.

### Recommended Readings:

**George, R.**, *The Big Necessity: The Unmentionable World of Waste and Why It Matters*. Henry Holt. 2008. (on reserve)

## 14. Group Interdependency and Class Review: *Who Am I Becoming?* -5/1

### Assigned Readings:

**Bellwood, I.**, "100 Demon Dialogues," Graphic Novel:

<http://lucybellwood.com/100-demon-dialogues/>

**Whitman, W.**, "Kosmos," from *Leaves of Grass*, [www.gutenberg.org](http://www.gutenberg.org) 2012.