Biohacking in Reverse: an exploration of human sustainability

Lydia Fazzio, MD
Dept of Psychiatry
Emory University, Winter 2017

Prelude

During The Piedmont project, my thinking about sustainability evolved from conceiving it as a series of single virtuous actions to more of an organizing perspective on the future of humanity and our relationship to the interconnected ecosystems around us. Within this new framework, I was able to view my work as a physician addressing human suffering in a much broader eco-contextual and multidisciplinary way.

Initially I had set out to design a course that simply integrated ‘ecology’ into the dominant Bio-Psycho-Social model of human illness; i.e. how environment/climate impact human mental health. When I began to explore further, it felt a bit reductionistic, predictable, staid and derivative. Of course it would be expected that a psychiatrist would focus on mental health impact of the environment… I guess, I wished for a more meaningful approach that added to our understanding of human-environmental interactions.

…however, there was no precedent for the course I wanted to create… additionally, how could I make this relevant and accessible; to move from a purely informational /traditional /passive teaching to a perspective of effective action, potentially carving a new role for psychiatry and medical professionals as activists and advocates for a more sustainable human-ecologic relationship...

To this end, as I read more about sustainability, human ecology, eco-psychology, eco-philosophy and enviro-politics/economics, I realized that something more was possible: I began to integrate my longstanding interests in the DIY ‘biohacking’ movement- a philosophy of tinkering with existing biology to extend what a system can do. Through my experiences running a biohacking Meetup in NewYork City and interviewing a number of technologists, synthetic biologists, philosopher’s and DIYers, I encountered post-humanist philosophy, the anthropocene concept and the notion of existential risk of global ecologic catastrophe. There it was, the link between humanity and the broader planetary ecosystem...

With this awareness, I began to form a theory of human health that shifted the focus from one of addressing pathology to one of optimizing ‘wellbeing’ - to harnessing our innate potential for health by returning to the natural - ‘reverse - hacking’. It shifted the focus from ‘synthetically’ enhanced wellness to one that optimizes our innate potential, ‘naturally’. In the exploration of the innate ‘natural’, I encountered the Gaia Theory and the notion of biophilia - the ancestral yearning for human-nature connection. This uncovered the stabilizing force of contemplative practices, Slow Theory, eco-collectivism and alternatives to traditional consumption.

I thus built the course BioHacking in Reverse: An Exploration of Human Sustainability that includes a number of vantage points, each with unique relationships to sustainability: biology, risk analysis, futurism, philosophy, design, anthropology, sociology, economics and traditional activism - my hope is that it will inspire contemplation, debate and ultimately, transformation.
Instructor Information

Instructor  Email  Department
Lydia Fazzio, MD  LFazzio@emory.edu  Psychiatry

General Information

Description
The explosion of interest in human enhancement via implants, sensors, smart drugs has certainly brought us closer to the fantasied ‘techno-human’ future where we never age, never get sick and where some can achieve optimal intellectual and physical performance. Certainly, progress in synthetic biology, brain computer interfaces and the -omics has opened up new possibilities for the human experience. However, this can come at a cost. With our potential entry into the anthropocene epoch, there is the existential risk of self-annihilation as we perpetuate natural disasters that threaten our planet and consequently, our very existence.

This course examines the evolution of the biohacking movement and explores its philosophical, moral and political implications for the sustainability of the human being and the biosphere. It will introduce the possibility of Reverse Hacking: a sustainable form of human evolution that revisits the definition of ‘natural’ and looks at movements that honour forward progress while embracing the natural rather than trying to outsmart it. We will visit notions of biophilia, the Gaia Theory and trace the evolution of the contemplative consumption movement as exemplified by the Slow theory of design/living/city and slow food. We will review the latest thinking on biophilic design, the evolution of eco-cooperatives and the degrowth movement. Together, we will examine the possibilities inherent in Reverse Hacking and how it can be utilized to foster human and planetary wellness.

Expectations and Goals
At the end of this academic journey, I anticipate that you will be able to:

- Identify selective but central concepts in biohacking, post-humanism, biophilic design and the degrowth movement
- Explain how biohacking principles can be applied to human & planetary sustainability
- Appraise & critique different perspectives/approaches to human & planetary sustainability
- Formulate your own theory of ‘reverse’ biohacking as it relates to the human—nature relationship
- Coalesce your discoveries/thoughts/perspectives into writings for the online course magazine that will supplement your final policy brief for a local change project

Class Format
Class sessions can include a) instructor presentation on the day’s topic b) group discussion on assigned readings c) experiential exercise and/or video d) skype-live guest interview e) orientation to subsequent readings f) field-trip

Assignments

- **Student portfolio:** each student will keep a personal portfolio on the personal blog containing written work in class and include contributions to class online magazine as well as other assignments
- **Collaborative Online Magazine** on Biohacking in Reverse: Contribute to collaborative class ‘Blog-zine’ that will be converted into an online magazine at the end of the course

- **Ecologic Autobiography**: brief paper describing significant places, people, animals, and activities from your personal history that have influenced your relationship with the natural world

- **Reflection Journal-course diary**: both online and offline journal about class topics, reactions, thoughts, feelings, ideas about topics/discussions in and out of class.

- **Self-tracking / biohacking-in-reverse project**: choose personal behaviour and track for 10 days - choose a behavior you wish to change and reverse-hack it - write about it.

- **Weekly response essay** 300-500 words on class topics/recent readings/news events posted to class discussion forum

- **Various Experiential sessions** in between classes that helps apply concepts of human-nature interaction

- **Field trip**: to illustrate the power of the commons to live sustainably and reconnect with human-nature-values

- **Local/Campus change project policy brief**: Find a human/environmental “wound” near your campus or home community and come up with a policy brief for helping to heal it

### Course Materials

Note: additional articles or supplemental materials will be uploaded to Blackboard or made available in class

**Suggested Foundational Texts & Online publications**


- Food and Agriculture Organization of the United Nations *Writing Effective Reports: Preparing policy Briefs*

- Guidelines for critical reading in *Writing for Sociology 2nd ed Berkeley*
Other helpful texts/websites
This preliminary resource list will be updated/expanded during the course and be available on the course website

- Thiele, Leslie P. *Sustainability*, 2016
- *Center for the Study of existential risk* cser.org
- *Future of Humanity Institute* fhi.ox.ac.uk
- edge.org | longnow.org | edge.org
- *SENS Research Foundation* sens.org
- *B-corporation* bcorporation.net

Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
<th>Exercises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I: Fast Forward</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1 | Why are we here? | Syllabus  
*Rees, Martin. Curtains For Us All? | Edge.org. 2017*  
Guidelines for critical reading in *Writing for Sociology 2nd ed Berkeley* | eco-biography |
| 2 | What is biohacking? | Selections from:  
biohackacademy Waag Society, Netherlands  
KevinWarwick.com Cyborg 2.0  
10 Things You Should Know About Biohacking. Listverse. 18 May 2015 | Self-tracking/ change project outline  
Inspiration:  
brucelee.com/philosophies  
bulletproof.com  
greengreenfieldfitness.com  
grindhousewetware.com  
biohackingbook.com | |
| 3 | PostHumanism/ TransHumanism | Selections from:  
"Rosi Braidotti,.." YouTube.  
YouTube, 02 Mar. 2017.  
Response essay |
<table>
<thead>
<tr>
<th>Phase</th>
<th>Topic</th>
<th>References</th>
<th>Resources</th>
</tr>
</thead>
</table>
*Death Is Optional - Conversation between Noah Harari and Daniel Kahneman* | Video: selected sections from Aix*Marseille university Neuroethics - ethics of neuro-enhancement 2016  
Response essay |
| 5     | Guest lecturer [TBD] | TBD | Reflection journaling continues |
Nick Bostrom Analyzing Human extinction Scenarios and Related Hazards NickBostrom.com On Existential Risks | Response essay/Your Biologic footprint calculator  
Web. 30 July 2017 [focus on risk of AI] |
| 7     | Biophilia, Gaia Theory and ReWilding humanity | Selections from:  
Web. 30 July 2017  
Nature immersion exercise |
| 8     | Slow living | Selections from:  
Web. 30 July 2017  
Slow Research Lab slowlab.net | Review Stuff that works chapter in Redesigning our realities to inspire change project ideas |
<table>
<thead>
<tr>
<th>Phase</th>
<th>Activity</th>
<th>Notes</th>
</tr>
</thead>
</table>
| 9     | Field trip to eco-cooperative/guest lecturer | Location TBD / Guest TBD  
Explore websites: Cooperativea Integrada Catalana cooperativa.cat/en/  
Global Ecovillage network ecovillage.org  
Execute a hands-on skill from primitive.org and document for class  
Reflection journal |
| 10    | Biophilic Design | Selections from  
Response essay |
| 11    | Contemplative Consumption & The Degrowth paradigm | Selections from:  
"The School of Life. Alain de Botton. Web. 30 July 2017 including Epicurus on happiness, Status anxiety,  
Practice consumption in a different way  
Review policy change brief |
| 12    | Time, change project panel presentations & Blog-Zine synthesis | Selections from  
Parting wisdom from Wim Hof, Mark Divine, Dean Karnazes, Nigel Warburton, Donna Haraway, Barbara Muraca, Natasha Vita-More, Melanie Swan, Andrea Antonopoulos, Douglas Rushkoff, Sam Harris, Lee Smollin...and more  
Complete student portfolio, finalize policy brief and quiet reflection on our journey together |

**Course Evaluations**

Your final grade will be based on the following:

- Weekly response essays: 10%
- Participation and attendance: 15%
<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-tracking/hacking project</td>
<td>15%</td>
</tr>
<tr>
<td>Local/Campus change project</td>
<td>20%</td>
</tr>
<tr>
<td>In-class group presentations</td>
<td>10%</td>
</tr>
<tr>
<td>Portfolio final</td>
<td>10%</td>
</tr>
<tr>
<td>Blog-zine contribution</td>
<td>20%</td>
</tr>
</tbody>
</table>