

Mark L. Bourgeois, Ph.D. – Curriculum Vitae
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Education

Loyola University Chicago Chicago, IL
Doctor of Philosophy in Philosophy, May 2014 – “*With Distinction*”
(Dissertation: “Purpose and Design in Organisms and Artifacts: The Search for a Unified Philosophical Theory of Function”)

Miami University Oxford, OH
Master of Arts in Philosophy, August 1999

University of Illinois Urbana-Champaign, IL
Bachelor of Science in Physics, May 1996
Bachelor of Arts in Philosophy, May 1996
Minor in Mathematics

Academic Appointments

University of Notre Dame Notre Dame, IN
Postdoctoral Fellowship, August 2014
Postdoctoral Fellowship, August 2017

Teaching Experience – University of Notre Dame

- PHIL 24448 Technology and Innovation Ethics – Spring 2019, Summer 2019
 - Novel online course produced with Notre Dame Office of Digital Learning for use in Notre Dame California’s Silicon Valley Initiative
 - Covers ethical theory, technology ethics cases, responsible innovation, values in design, policy anticipation and more for students in tech industry
 - Co-taught/developed with Prof. Don Howard
- PHIL 20608 Philosophy of Technology – Spring 2015, Fall 2015, Spring 2016, Fall 2016
 - Undergraduate course covering principles and trends in the social and ethical impact of technology broadly
 - Discussion-based with broad reading sets emphasizing both philosophical reflection and current events
 - Units on social networking, automation, biomedical applications, and environmental sustainability
- ESTM 60222, 60106 Ethical Issues in Business and Technology – Fall 2015/Spring 2016, Spring 2017, Spring 2018
 - Core ethics courses for Engineering, Science and Technology Entrepreneurship Excellence Master’s (ESTEEM) program
 - Covers business ethics as well as ethics and impact of scientific and technological innovation on users and society at large
- GRE 60701, 60702, 60703 Social Responsibilities of Researchers – 2015 – 2018

- Training component of the NSF EESE program, including sessions on ethics and social impact, science communication, design thinking and more
- GREED 60801, 60802, 60803, Leadership Advancing Socially Responsible Research
 - Training program for PhD students from any department in leadership, social engagement and the ethical impacts of research
- Physics REU – Summer 2016, 2017, 2018, 2019
 - Ethics unit on basic research ethics using role play and case study taking a novel virtue ethics approach
- Responsible Conduct of Research Annual Workshop – 2015 – 2018
 - Taught units on Research Integrity in both STEM and Humanities workshops
 - Led efforts to reform delivery in 2018

Teaching Experience – Northwestern University

- Design Thinking and Communication (DTC) I and II – 2010 – 2014
 - Engineering instructor guiding four teams per section through design process, from initial concept to final prototype, for an actual client
 - Work with communication instructor to help students prepare progress reports and design reviews at each stage
- Design Thinking and Communication (DTC) II – 2009 – 2014
 - Led effort to add engineering ethics to this core course; funded by competitive Murphy Alumni grant
 - Material developed included lecture on ethics and engineering impact, ethics chapter in the course textbook, a collection of engineering ethics case studies, guidelines for written assignments and ethics discussions
 - First time in the history of the School that engineering ethics had been made a part of every engineering student's coursework
- QARS 430 Ethical and Legal Issues in Regulation and Quality – Spring 2007, Winter 2008, Summer 2008, Winter 2009, Winter 2010, Fall 2010, Summer 2011, Spring 2012
 - Core course in the Masters in Quality Assurance and Regulatory Sciences (MQARS) professional Master's program
 - Developed unique course that explores ethical and social issues relevant to the regulation of the food, drug and medical device industries
 - Covered issues such as medical device defects, pharmaceutical marketing, clinical trial conduct, stem cell research and genetic engineering; one of the highest rated courses in the program
- NSF Bioengineering Education Research REU – 2010 – 2012
 - NSF Research Experience for Undergraduates (REU) program focusing on engineering education research.

- Created and taught original content on human subjects research ethics, covering evolution of medical research from 19th c to WWII through present, including Tuskegee, Belmont, Beecher and other landmark cases
- Close study of major ethical issues of the present, including division of research from practice, depth of informed consent, availability of treatment outside trials and nature of legal protections

Team-taught Courses

- BME 390 Senior Biomedical Design – Winter 2006 – 2016
 - Ethics of international clinical trials using a contemporary case; stresses ethics as integrated with design process
- BME 101 Introduction to Biomedical Engineering – Winter & Spring 2006 – 2013
 - Medical device defect case introducing freshman biomedical engineering students to medical as well as engineering ethics
- VaNTH REU Program NU, MIT, Vanderbilt and UTA – Summer 2006, 2007
 - Ethics component covering Tuskegee and the birth of clinical trial regulations, including the Belmont report principles

Guest-lecturer Courses

- International Nanotech Institute REU – Summer 2010 – 2016, 2019
 - Workshop sessions on detecting and addressing social and ethical issues in student nanotech research projects
 - Lecture/discussion on ensuring nanotechnology health and safety
- Segal Design Institute, Interdisciplinary Design 298/398 – Winter 2010, Fall 2010
 - Lecture/discussion on ethics in engineering design, with a focus on cost/benefit decision making using Ford Pinto case
- BME 250 Biothermodynamics – Winter 2005, 2006, 2007
 - Developed novel approach leveraging student design training framing ethical principles as design criteria
 - Covered basics of informed consent and principles of Belmont Report using dialysis trial case integrated with course content
 - Created survey tool to benchmark ethical attitudes before and after intervention. Results published in FIE Proceedings 2007
- Biological Science 423 (Graduate seminar) – Spring 2006
 - Lecture on human enhancement technologies with an emphasis on social impact of potential future developments

Professional Appointments and Experience – Academia and Industry

University of Notre Dame

- PI, NSF CCE-STEM award for Cultivating Foundations for Responsible Innovation, October 2019 (\$300k)
 - Author of proposal to provide project-based training in Responsible Innovation to small teams of interdisciplinary graduate students
 - Notre Dame IDEA Center and Graduate School partners
- PI, Positive Research Integrity workshop at the Reilly Center, March, 2017 (NSF CCE-STEM workshop award) (\$50k)
 - Convened over a dozen experts from around the country for a two-day workshop on reforming Responsible Conduct of Research training
 - Presenter and lead author of paper on findings for best practices in research integrity training
- Co-PI, NSF Ethics Education for Scientists and Engineers (EESE) award, Social Responsibilities of Researchers, September 2013; Prof. Don Howard, PI (\$300k)
 - Responsible for all aspects of program operation and grant management.
 - Developed themes and content, authored website and recruitment materials, co-developed assessment plans, coordinated project management, etc.
 - Manage budget, sponsor reporting, IRB submissions, etc.
- Senior personnel, NSF Cultivating Cultures of Ethical STEM (CCE-STEM) award, Ethical Leadership in STEM (EL-STEM), September 2014; Dean Laura Carlson, PI (\$500k)
 - Integrate philosophical ethics perspectives into Leadership training
 - Support Assessment and publications
- Member, Professional Development committee, The Graduate School
 - Support “Ethic Spire” content delivery, including Lunch and Learns on ethics and leadership and “Experts Discuss” series
 - Support Responsible Conduct of Research training delivery to all graduate students (including separate workshops for humanities and STEM)

Northwestern University

- Faculty member of organizing committee for the NIH-sponsored research ethics symposium, *Patient or Subject: the Ethics of Translational Research*
 - Responsible for themes and program, speaker selection and registration website creation
 - Assembled education website with complete symposium content (now a permanent part of the Feinberg Medical School website)
- Administrator of the Northwestern Center for Engineering Education Research (NCEER), 2008 – 2014
 - Responsible for publicity, communications, website, grant proposal development, events and other aspects
 - Authored regular newsletters to NCEER community
- Administrator of the Bioengineering Education Research (BER) REU, 2009 – 2012
 - NSF Summer program for undergraduates to conduct engineering education research or outreach activities

- Responsible for initiating & managing all aspects of program across 3 sites (Northwestern, Vanderbilt and UT Austin), including website creation, advertising and promotion, student recruitment and applications, budgeting and reporting
- Administrator of the Northwestern site of the VaNTH Engineering Research Center for Bioengineering Education Technologies, 2003 – 2008
 - Managed \$1M+ annual budget, personnel, daily operations and all administrative aspects of the VaNTH ERC at Northwestern including budgeting, projections, cost sharing and reporting to sponsor
 - Assisted in authoring new and extension grant applications, particularly as they related to ethics
- Organized major events, including the Third Biomedical Engineering Education Summit Meeting, June 16-17, 2008, St. Charles IL

Industry

- Systems engineer in telecom, including roles in marketing and sales, 1999 – 2003
 - Lucent Technologies (optical backbone network hardware), 1999 – 2001
 - Deployment engineer for domestic, European and Latin American optical network rollouts
 - Developed and taught introductory optical networking course
 - Sales and pre-sales support including consulting and network design
 - Clear Communications (optical network management software), 2001 – 2003
 - Engineering support for entire North American sales team, plus channel and partner business development teams
 - Developed themes, content and materials for industry conferences, speaking opportunities and trade shows; authored whitepapers and articles for industry publications

Honors, Awards and Grants

- PI, NSF CCE-STEM Award 1922257, “Cultivating Foundations for Responsible Innovation”, \$295,787
- PI, NSF CCE-STEM Workshop Award 1655388, “Positive Research Integrity” (RCR reforms), \$48,124
- Co-PI, CCE-STEM Award 1338652, “Citizen Scientists as Agents of Change” (Social Responsibilities of Researchers program), \$299,995
- Postdoctoral Fellowship, University of Notre Dame Graduate School, 2017 – 2019
- Postdoctoral Fellowship, University of Notre Dame Reilly Center for Science, Technology and Values, 2014 – 2017
- Faculty Fellow, NEH Institute on Moral Psychology and Education, Grand Rapids, MI, 2016
- Defense with Distinction award, Loyola University Chicago, 2014

- Northwestern University McCormick School of Engineering and Applied Science Murphy Alumni Award, 2010 and 2009, co-recipient 2006
- Senior personnel, NIH T32 training supplement award for special research ethics symposium with Profs. Jules DeWald and David Schneeweis, 2011
- Senior personnel, NSF Site REU award for Bioengineering Education Research with Prof. Robert Linsenmeier and Dr. Stacy Klein of Vanderbilt, 2009
- Work and teaching featured in IEEE Pulse magazine article, “Tightening of Ethical Standards in Bioengineering Brings Teaching to the Fore”, January/February 2013 by John Ostrompke

Publications

- *In process*: Book Proposal: “Socially Responsible Research and Responsible Innovation” – solicited proposal to Rowman Littlefield International, December 2018
- *In process*: “Responsible Conduct of Research Reforms”, submission to Science and Engineering Ethics based on 2017 NSF award
- Bourgeois, M. (2019) “Virtue Ethics and the Social Responsibilities of Researchers” in Oxford volume on Science, Technology and the Good Life
- Bourgeois, M. (2017) “Design and Assessment of the Social Responsibilities of Researchers Graduate Training Program at the University of Notre Dame”. Proceedings of the American Society for Engineering Education (ASEE) Annual Conference and Exposition, June 2017 13 pp.
- Bourgeois, M. (2016) “Should We Teach Science and Engineering as Practices?”. History of Science Society Newsletter, October 2016 (v. 45 n. 4) 3 pp.
- Bourgeois, M. (2013) “Autonomy and Exploitation in Clinical Research: What the Proposed Surfaxin Trial Can Teach Us about Consent”. Ethics in Biology Engineering & Medicine, 2012 v3. 10 pp.
- Textbook chapter, “Ethics in Engineering Design” in Engineering Design and Communication, Principles and Practice, Northwestern University 2011
- Bourgeois, M. and S. Olds (2007), “Ethics in a Design Paradigm”. Frontiers in Education 37th Annual Conference, October 10-13, 2007 2 pp.
- Linsenmeier, R.A., Alley, J.M., Hirsch, P.L., Klein, S.S., Greenberg, J., and Bourgeois, M. (2008) “A unique research experience in bioengineering education for students in the VaNTH REU”. Proceedings of the American Society for Engineering Education (ASEE) Annual Conference and Exposition, June 2008

Presentations

- “Virtue ethics perspectives on the moral risks of automation”. Global Jesuit Business Ethics and Colleagues in Jesuit Business Education Conference (JBE/CJBE), Santa Clara University, Santa Clara, CA, July 13, 2019
- “Virtues and Values: Ethics in Science”. American Chemical Society (ACS) Central Region Meeting (CERM) 2019, Midland, MI, June 7, 2019 (*Invited talk*)

- “A New Framework for Technology Ethics”. Society for Philosophy of Technology (SPT), College Station, TX, May 20, 2019
- “Virtue Ethics and Professional Ethics – Tension or Synergy?” Association for Practical and Professional Ethics (APPE), Baltimore, MD, February 28, 2019
- “Ethics Across the Curriculum: Pedagogical Perspectives”. Association for Practical and Professional Ethics (APPE), Baltimore, MD, February 28, 2019 (Panelist)
- “‘Engineering Ethics’ or ‘Innovation Ethics’?”. Society for Ethics Across the Curriculum (SEAC), Rochester, NY, October 11, 2018
- “Ethics Across the Curriculum: Pedagogical Perspectives”. Society for Ethics Across the Curriculum (SEAC), Rochester, NY, October 11, 2018 (Panelist)
- “An Exploration of Applying Self-Determination Theory as General Technology Design Criteria”. Forum on Philosophy, Engineering and Technology (fPET), College Park, MD, May 30, 2018
- “Self-Determination Theory and Flourishment Criteria in Technological Design”. Science, Technology, and the Good Life: Perspectives on Virtue in Science & Technology Studies, University of Notre Dame, April 5, 2018 (*Invited talk*)
- “The SRR Program at the University of Notre Dame”. Workshop on Engaged Scholarship for Ethics and Responsible Innovation in STEM Fields, Genetic Engineering and Society Center, North Carolina State University, March 14, 2018
- “Recommendations for Responsible Conduct of Research Training Reform”. With Profs. Michael Kalichman, Dena Plemmons and 6 other RCR trainers. Association for Practical and Professional Ethics (APPE), Chicago, IL, March 3, 2018
- “Self-Knowledge and Ethics: What Can Leadership Development Contribute to Ethics Education?” With Dr. John Lubker. Association for Practical and Professional Ethics (APPE), Chicago, IL, March 2, 2018
- “Communicating Your Research: Who, Why and How”. Psychology Graduate Student Association, February 23, 2018
- “Public Perceptions of Expertise”. University of Notre Dame Graduate School Lunch and Learn, February 16, 2018
- “Training for Social Responsibilities as an Essential Component of Leadership Training”. Society for Ethics Across the Curriculum, Grand Rapids, MI, October 6, 2017
- “Integrating Broader Impacts into your Funding Proposals”. With Dr. Samantha Lee. University of Notre Dame Graduate School Lunch and Learn, September 1, 2017
- “Design and Assessment of the Social Responsibilities of Researchers Graduate Training Program at the University of Notre Dame”. American Society for Engineering Education (ASEE) Annual Conference and Exposition, Columbus, OH, June 2017
- “Graduate Training for the Social Responsibilities of STEM Researchers”. Association for Practical and Professional Ethics (APPE), Dallas, TX, February 2017

- “Ethical Leadership and Social Responsibility”. University of Notre Dame Graduate School Lunch and Learn, January 19, 2017
- “What Would It Mean to Teach Science and Engineering as Practices?” Society for Ethics Across the Curriculum (SEAC), Salt Lake City, UT, October 2016
- “An Overview of Social Responsibilities of Researchers”, Northwestern Center for Engineering Education Research (NCEER), Northwestern University, May 2016 (*Invited talk*)
- “Social Responsibilities of Researchers at Notre Dame”, Socially Relevant Philosophy of/in Science and Engineering (SRPoISE), Michigan State University, Detroit, MI, March 2015
- “Applied Ethics as an AOC”, History and Philosophy of Science program training session, November 14, 2014
- “The Surfaxin Trial as a Microcosm of Research Ethics”, *The Seventh International Conference on Ethical Issues in Biomedical Engineering*. SUNY Downstate Medical Center, New York, NY, April 20-21, 2013
- “Teaching Ethics Strategically”, NIH-sponsored symposium, *Patient or Subject? The Ethics of Translational Research*. Northwestern University, August 15, 2012
- “Ethics in a Design Paradigm”, *Frontiers in Education 37th Annual Conference*, Milwaukee, WI, October 13, 2007

Service and Other Relevant Activities

- Reviewer for Springer Science and Engineering Ethics journal
- Author of internal proposal for making ethics a strategic part of graduate student professional development training, resulting in the creation of a new full-time pilot position for research ethics education
- Co-developer (with Dr. John Lubker), Leadership Advancing Socially Engaged Research (LASER) training program – one-year internally-supported training program for PhD students in leadership, ethics and social engagement
- Notre Dame Graduate School Professional Development committee, 2014 – Present
- Faculty Advisor, GLOBES Program, Reilly Center for Science, Technology and Values, 2016 – Present
- Reviewer, DaVinci interdisciplinary undergraduate research grant awards, 2018
- Faculty co-founder, *Research Ethics Journal Club*, 2012 – 2014 (Northwestern)
- Design Thinking and Communication Core faculty committee, 2009 – 2014 (Segal Design Institute, Northwestern)
- Advisory board for the creation of the Masters in Quality Assurance and Regulatory Science (MQARS) program, 2007 – 2011 (School of Professional Studies, Northwestern)
- Supervision of multiple Masters’ theses in MQARS, including one on the functioning of ethical review boards (IRBs)
- Teaching Research Ethics workshop attendee, Poynter Center for Ethics, Indiana University, 2007

- Participant, “Collaboration in Scientific Research: Ethical, Philosophical and Other Perspectives on Scientific Practice”, NSF-funded experimental ethics course at Illinois Institute of Technology, Fall 2011 with Prof. Vivian Weil
- Organizer and Moderator, Loyola graduate student conferences, 2005 and 2010

Memberships

- Association for Practical and Professional Ethics (APPE)
- American Society for Engineering Education (ASEE)
- Society for Philosophy and Technology (SPT)
- Society for Ethics Across the Curriculum (SEAC)
- Consortium for Socially Relevant Philosophy of/in Science and Engineering (SRPoiSE)

Collaborators and References (*Contact information available on request*)

- Don Howard, Professor, Philosophy, University of Notre Dame (Postdoc Advisor)
- Laura A. Carlson, Vice President and Associate Provost, Dean of the Graduate School, Professor of Psychology, University of Notre Dame
- John Lubker, Associate Dean for Academic Affairs, University of Notre Dame
- Rich Taylor, Director (Interim), Notre Dame California, Professor of Chemistry and Biochemistry, University of Notre Dame
- Bryan Ritchie, Vice President and Associate Provost for Innovation, University of Notre Dame
- James Blachowicz, Professor Emeritus, Philosophy, Loyola University Chicago (Dissertation Advisor)
- Michael Pritchard, Professor Emeritus, Philosophy, Western Michigan University
- Robert A. Linsenmeier, Professor, Biomedical Engineering, Northwestern University
- Dena Plemmons, Director, Research Ethics Education Program, University of California, Riverside