

# Interdisciplinary Teaching Grant Proposal

## APPLICANTS:

### Core Faculty

The School of Arts and Sciences:

*Course Master:*

Rebecca Messbarger, Professor of Italian, Department of Romance Languages, Affiliate Professor in History and Women, Gender and Sexuality Studies

Corinna Treitel, Associate Professor of History, Department of History

### Collaborating Faculty:

Washington University School of Medicine:

Krikor Dikranian, Associate Professor of Anatomy and Neurobiology

The Sam Fox School of Design and Visual Arts:

Patricia Olynyk, Director of Graduate Studies

The Washington University School of Engineering:

Igor Efimov, Lucy & Stanley Lopata Distinguished Professor of Biomedical Engineering

### Overview of Proposed Course "The Art of Medicine"

The body is the core of all human experience; it is the vehicle and the lens for interpreting our physical and perceptual existence. As body artist Antony Gormley has said, "through it all our impressions of the world come and from it all we have to share with the world is expressed." Medical science, in its development over the past three thousand years, has explored, ever more intricately, the hidden landscape beneath the skin and has sought to understand, to preserve and enhance the wellbeing of the body: human health. To fulfill these aims and to fathom the palpable and invisible means of life, the causes of disease and, crucially, to circulate this knowledge among experts and the wider public alike, medical science has bound itself to the arts and crafts: from hand-drawn illustrations of the anatomical body to MRI; from leeching, trepanning, and urine tasting by seventeenth-century barber surgeons to contemporary drug therapy and health education campaigns, medicine has defined its mission and disseminated medical knowledge through images, words, crafts and technology.

This interdisciplinary, cross-school course at the intersection of the humanities and medicine offers students a singular encounter with the changing art and craft of western medicine from ancient times to the present day. Focusing on the evolution of

medical knowledge and practices, the course proceeds chronologically and highlights transformational moments in the history of medicine. It begins with the Hippocratic physician's still influential treatise *On the Art of Medicine* from the 5th century BCE. Students will engage with the writings on human anatomy and physiology by Greco-Roman physician Galen (2nd century CE), whose humoral theories dominated Western medical practice for nearly 1400 years, until 1543 when Andreas Vesalius published his revolutionary anatomical atlas *On the Fabric of Human Bodies*, an event widely viewed pivotal for the invention of the modern body. To better understand the influence of state law and religious doctrine on medical knowledge, students will follow step-by-step the historic execution and public dissection of a criminal body in the presence of government and religious leaders in eighteenth-century Bologna. They will examine early modern illustrations and 3-D wax models of the anatomized body that uncovered hidden organs and pathologies before the advent of modern technologies in body imaging. They will study Louis Pasteur's and Robert Koch's writings, which launched modern biomedicine in the late nineteenth century. To gauge the changing public significance of the human anatomical subject, students will compare the dissections staged during the Renaissance with mass spectacles that have become a regular feature of modern life-- from the "Transparent Man" show organized by the Dresden Hygiene Museum in 1930 to the controversial "Body Worlds" exhibit of present-day anatomist Gunther von Hagens. They will trace the development of nineteenth-century hygiene and its concern with epidemic infectious disease to eugenics and racial hygiene in the twentieth century. And they will follow the rise of genomic medicine from Aristotle to current gene mapping and therapies. All along the way, students will learn to see medicine as a social practice deeply implicated in the beliefs and struggles of past eras.

Principal instructors, Rebecca Messbarger and Corinna Treitel, will incorporate a range of disciplines in which they have a proven record of research and teaching, including European cultural history, the history of science and medicine, art history, and gender studies. Messbarger's work centers on the early modern period and Treitel's on the nineteenth and twentieth centuries, which will be the respective general, focus of their teaching. Select lectures given by specialists at the Medical School, the Sam Fox School of Art and Design, and the School of Engineering will enhance and extend primary themes confronted by core faculty.

In his lecture, "The Amazing Brain," Anatomy Professor and Neurobiologist Krikor Dikranian will explore the evolution of neuroscience through the centuries- from Imhotep, to Vesalius and Ramon Y Cajal --and will conclude with the aesthetic art of modern brain visualization in which he is currently involved. Internationally esteemed artist and Director of Graduate Studies at the Sam Fox School of Design and Visual Arts, Patricia Olynyk, will discuss, in her lecture "Light Box Bodies," her and other artists' creative partnerships with life scientists to reveal new biological, philosophical, cultural and aesthetic interpretations of the human form. Of special emphasis in her presentation will be Olynyk's re-vision of anatomical models, flap anatomies, gynecological instruments, and prosthetic devices collected for their unique historical value. The Lucy & Stanley Lopata Distinguished Professor of Biomedical Engineering, Igor Efimov, will take students to the "Future of Cardiology," by first plotting the history

of cardiology, cardiac electrophysiology, and optical imaging of the heart foundational for his own development of an implantable atrial defibrillator and lab work on next generation treatments for heart disorders.

The proposed course responds to widening interest among undergraduates at Washington University in interdisciplinary studies that engage the intertwined work of science, especially medicine, and the humanities. As is well known, Washington University attracts a large number of undergraduate students intending to enter health related fields. This year over fifty percent of the incoming class indicated a primary interest in a pre-med major. These students are especially keen on having a greater range of curricular options beyond the natural sciences to understand the cultural and social significance of health, disease, and medical care. When Corinna Treitel taught "Health and Disease in World History" (History 164) for the first time in 2013, for instance, she drew 73 students, many of whom finished the course wanting to take follow-up courses on more specialized topics. As one student wrote in an evaluation,

*I [took this course] primarily out of curiosity; as a premed, I thought it might be interesting to investigate how today's health systems and beliefs have developed from those of the past. However, I ended up getting much more out of the course than I predicted ...[the course] demonstrated the importance of considering technological, social, economic, and political factors when assessing health-related issues. For example, I had previously been in favor of assisted suicide; however, after having studied the Nazi euthanasia campaigns, I now have a different, more conscientious perspective on the assisted suicide debate.*

The "Art of Medicine" extends the sights of pre-health students beyond the purview of laboratory analysis and data-driven clinical practice to consider the historically and culturally informed experience by individuals of illness and care. However, while this course is especially appropriate for students planning to enter health professions, through the eclectic range of subjects and media used to approach the development of medical theories and practices, as well as the diverse expertise and methodologies of the instructors, the course seeks to involve students in all specializations. Messbarger and Treitel envision this course as the required gateway for the Medical Humanities minor they will launch in the fall of 2015.

### **Practical Organization of the Course**

The target enrollment for this course to be offered in the Fall 2015 is 50 first-year students. After consultation with the College Office and specifically Caroline Herman, Associate Dean of the College and Director of the Undergraduate Pre-Health Program, we plan to offer the course on days and times that will least conflict with the pre-health requirements of first-year students. The course will thus be offered on Mondays and Wednesdays 2:00-4:00. The Monday class will be a lecture given by core and affiliate faculty and on Wednesday, an advanced-level graduate student teaching assistant will lead back-to-back discussion sessions of 25 students each: section A, 2-3 and section B 3-4. This format will allow both for the coverage of ample primary

material and direct engagement of students in smaller group discussions. As Course Master, Messbarger will coordinate the curriculum of the course, create the syllabus, work closely with the TA to define the goals of the discussion sections and the assessment, work with the technology consultants to effectively incorporate slide and video presentations, and work with faculty collaborators to produce a coherent and effective program and outcomes.

### **Proposed Activities During Planning Stage**

Core Faculty will collaborate to determine the structure of the course and primary subjects to be covered in each class of the semester. Extensive research will be conducted on potential readings and supplemental materials on select topics. Working with the Graduate Student Teaching Assistant, the Course Master will organize the select readings and any supplemental materials (such as on-line audio and video presentations, artwork, library materials, relevant material objects like anatomical models and medical instruments, etc.) for each class of the semester. The Course Master will compile a bibliography of relevant texts for student research. The Course Master will oversee scanning of and uploading of textual course materials to Blackboard. Technological teaching tools, power point slides, videos, etc. will be created for discrete classes. The Course Master will create a syllabus with a detailed description of each class of the semester, assignments, exam dates and the final creative project. Core Faculty will work to create examination materials for the two exams during the semester. They will collaborate to define expectations and ideal outcomes for the final project. Core Faculty will collaborate extensively with each other, with affiliate faculty and colleagues with expertise relevant for the development of this course. Core Faculty will work with archivists at the world class Becker Medical School Rare Archive as well as the Washington University Medical School Center for the History of Medicine to develop materials, ancient to contemporary, as well as a book exhibition for the course.

### **Anticipated Revisions for Year Two**

Messbarger and Treitel are committed to expanding the cultural framework of "The Art of Medicine" to include consideration of global medical history and practices, especially of eastern cultures. In order to undertake serious preparation in this expansive area of medical studies and to develop collaborative relations with experts in non-western fields with whom we will consult and ideally include as teaching partners, we plan to develop the curriculum in this direction during the second year of the course. Waiting until the second year will allow time to produce a revised curriculum with greater academic integrity that goes beyond the cursory comparison to give a full consideration of nonwestern medical science and arts.

Messbarger and Treitel are co-conveners of the **Medical Humanities Reading Group**, recently proposed for the 2014-15 academic year and approved for funding by the Center for the Humanities at Washington University. This will serve as a key forum for the exploration and discussion of potential readings and course materials for "The Art of Medicine."

## Assessment Plan

We propose a four-part assessment plan:

1. Syllabus review. We will put together a draft syllabus and ask for critical feedback from two or three scholars working in Medical Humanities at other schools. Medical Humanities is a new teaching field at the undergraduate level and each school approaches its introductory course differently. We have made personal contacts with directors and faculty at several leading programs in the country, including Vanderbilt and Duke University and discussed what they do. We will solicit feedback from them about our proposal and then revise accordingly.
2. Informal student reviews. We will solicit regular feedback from students during the first iteration of the course through one-minute response papers and a mid-semester review. One-minute response papers are short in-class writing assignments that ask students to respond to a question posed by the instructor to assess student understanding of material (e.g., what is the most important thing you learned today about the role of artists in early modern medicine? what do you still want to know?). We plan four response papers spread out evenly over the course of the semester. In addition, we will solicit anonymous comments about the course at the end of week 7 in order to gauge what aspects of lecture and discussion are working well for students and what aspects need improvement. We plan to tweak course material in response to both forms of feedback as the course progresses.

3. Formal assessment of student progress. We will hold two formal exams that test student knowledge of the portions of the course that deal with the history of medicine. In addition, the students will be required to complete a creative project that brings the history of medicine into dialogue with at least one of the other disciplines introduced over the semester (fine arts, anatomy, bioengineering, clinical medicine). For instance, a student might create a video on transformations in the understanding and imaging of a particular organ or anatomical system of the body: the brain, the heart, the lymphatic system, exploiting the rich collection of ancient and early modern anatomical texts as well as current imaging technologies at the Becker Medical Library; or two students could collaborate on staging an interview with a major figure in the history of medicine, like Galen, Vesalius, William Harvey or Louis Pasteur; or a student might create a studio art piece that brings together the fine arts and current medical knowledge. We expect the creative project to be the assignment that students enjoy most. From an assessment perspective, the creative project will also allow the instructors to gauge how well students are able to enact the interdisciplinary spirit of the course on a topic of their choice.
4. Final course evaluations and review. We will solicit detailed anonymous feedback from students at the end of the course and write up our own assessments. We will then discuss everything with our initial peer reviewers (see #1) to identify which parts of the course worked well and which parts need revising for next time.