Application Form for the 
Honors Eccles Fellow Program

Return the completed form to Judy Elsley, MC 2904

Name: Sally Bishop Shigley  
Co-Faculty’s Name: Brad Carroll
Extension: 7617  
Co-Faculty’s Extension: 7921
Department: English  
Co-Faculty’s Department: Physics
E-mail: sshigley@weber.edu  
E-mail: bcarroll@weber.edu
Date: 10/24/13  
Date: 10/24/13

Please use a separate sheet of paper to answer these questions:

1. Describe the class you’d like to teach. Attach a course syllabus; the more detailed the better. We would like to teach a class about the differences, similarities, and epistemologies of science and art. The syllabus is attached.

2. How does the class relate to your research? If you have publications in this area, please give us copies or references. I have an article forthcoming in the Journal of Medical Humanities on the intersection of art and medicine in undergraduate teaching. I presented a paper on teaching literature and medicine at the American Society for Bioethics and Humanities in October 2012. I presented on the use of humor in medical literature in April 2013 at the College English Association Conference, and I presented a paper at the Infertility in History, Science, and Culture conference in Scotland in July. Dr. Lauren Fowler and I have had a paper accepted for a book on empathy (can empathy be measured after some reads literature) which we submitted to the editor in July of this year.

3. Describe how your course contributes to the Honors Program and the Weber State community. The premise of medical humanities is that whether or not students plan a career in healthcare, we will all be participants in the physician/patient/caregiver relationship at some
point. Understanding how power, vulnerability, and pain work in that dialectic can benefit people on all sides of the sickbed. Brad and I are expanding this idea past medicine and into science in general. What are the implications in the epistemological, academic, and professional dislocations between science and art. Students will learn to see value on both sides and add to their discipline of choice with insights from the other side. In terms of the campus at large, the insights from this class could inform the initiative suggested by the provost to promote interdisciplinary and integrated learning. The discoveries the students make could be extrapolated to interdisciplinary work with faculty.

4. Apart from teaching the class, how will you contribute to the Honors Program during your fellowship? Brad and I plan to be available to programs such as Pizza with a Prof and could facilitate book bag discussions with students and faculty. The results of our class could easily be presented at one of the honors pedagogical conferences.

5. If you are submitting an online course proposal, briefly describe you experience teaching online courses.

6. [Signature and Name] (Department Chair), support this application for an Honors Eccles Fellowship. I agree to reimbursement from the Honors Program for the Fellowship, and will not assign overload classes to this faculty member for the duration of the Eccles Fellowship.

7. Your signature: [Signature]
Application Form for the Honors Eccles Fellow Program

Name: Bradley Carroll  
Extension: 7921  
Department: Physics  
E-mail: bcarroll@weber.edu  
Date: October 24, 2013

1. Describe the course you would like to teach. We would like to teach a class about the differences, similarities, and epistemologies of science and art. The syllabus is attached.

2. How does the class relate to your research? Although this class does not relate directly to my research in astrophysics and relativity, it does reflect my long-standing interest in forming bridges between science and the arts and humanities. I have given several talks at regional and national meetings of the American Physical Society and the American Association of Physics Teachers about one of my other Honors courses, “Physics in the Plays of Tom Stoppard,” and the course has gained national attention. (See Http://www.physicscentral.com/buzz/blog/index.cfm?postid=308582661651572049 ). I plan to describe and disseminate the results of this proposed course in a similar manner. Furthermore, I am about to begin writing a general education astronomy textbook, and I expect that my experience with this course will give me a better understanding of how better to present science to students majoring in the arts and humanities.

3. Describe how your course contributes to the Honors Program and the Weber State Community. In my opinion, the Honors Program is about exploration without fear. Too many students in the arts and humanities dislike and fear science and, especially, mathematics. I want to reach out to these students and find better ways of communicating so together we can begin to overcome this fear and develop a mutual understand and respect for our similarities and differences. On a more mundane level, as I stated in my previous answer, I plan to give regional and national talks and presentations on my experiences with this course.

4. Apart from teaching the class, how will you contribute to the Honors Program during your fellowship? The Honors Program offers many worthwhile opportunities to interact with students outside the classroom, and I want to participate in these as much as my teaching schedule will allow. I also enjoy using the Honors Center for informal meetings and review sessions with my students outside of class.

5. Not applicable. This is not an online course proposal.

6. I, Colin Inglefield (Department Chair), support this application for an Honors Eccles Fellowship. I agree to reimbursement from the Honors Program for the Fellowship, and will not assign overload classes to this faculty member for the duration of the Eccles Fellowship.
Honors 3900

The Physics of Poetry and the Poetry of Physics:
The Whys and Hows of Science and Literature

Dr. Brad Carroll, Physics

Dr. Sally Bishop Shigley, English

Course Description: Students will explore the epistemologies and histories of texts in both science and literature through reading various fiction and non-fiction genres. Issues of inquiry will include how science is represented in literature and how the humanities are seen by scientists. How does science use metaphors to explain the unexplainable? How does literature appropriate scientific theory as a subject?

Learning Objectives: Students will leave this class with an increased appreciation the interplay of science and literature and how they are mutually shaped, used and viewed. Specifically, students will gain

- a richer understanding of the complex ways a culture is shaped by science and technology, and of the ways scientific knowledge and scientific research practices are shaped by culture.
- a deeper appreciation of how and why literature uses representations of science, and how and why science uses literature to represent and advance itself.
- an improved recognition of the ways that science is viewed by those in the humanities, and how scientists view literature and the humanities.
- improved written and oral communication skills, with a focus on rhetorical skills and argument.
- improved critical thinking and reasoning skills, especially with regards to the production and cultural absorption of scientific knowledge and its subsequent portrayal in works of literature.
- improved research skills.

Assessment: These learning objectives will be assessed continually throughout the course by means of
• daily journal entries and online discussions by students.
• creative acts that reflect the learning objectives, such as writing prose and poems, and making in-class presentations.
• testing and researching a scientific hypothesis presented in science or science fiction literature.
• creating and presenting a final project that illustrates how the students have internalized the objectives of the course and used them to create something new and original.
• a survey of students' attitudes toward science (similar to the NSF's 2001 Survey of Public Attitudes Toward and Understanding of Science and Technology).

Texts: Selections from Metaphors We Live By, George Lakoff.
Selections of poetry including Walt Whitman, W.H. Auden, Katharine Coles, and Elizabeth Bishop. Selections from The Emperor of All Maladies: A Biography of Cancer, Siddartha Mukherjee
Feynman (Graphic biography), Ottaviani and Myrick
Waterworks, E.L. Doctorow
Frankenstein (Graphic novel), Shelley
Y The Last Man (Graphic novel), Brian K. Vaughan
Selection from The Man Who Mistook His Wife for a Hat, Sacks
Selection from Einstein's Dreams, Lightman
Contact (movie)
Darwin, His Daughter, and Human Evolution, Keynes
Creation (movie)
Bellwether, Willis
Selections from Rosalind Franklin: The Dark Lady of DNA, Maddox
Selections from Miss Leavitt's Stars, Johnson

Assignments: Daily journal and online discussion: Students will write one double-spaced typed page per day on a direct prompt related to the next class period's topic. These responses will be graded based on their engagement with the question asked rather than their "correctness." The online discussions allow students who are reticent in class to express themselves more confidently in an online environment and to allow
all students to show the whole class their thinking about a topic in a concrete way. This assignment allows students a place to practice their critical writing skills and to synthesize the epistemological paradigms of science and the arts.

Poem about a science topic: Early in the semester we will introduce a series of poetry prompts that encourage the students to “think like an artist” about a scientific idea, much the same way that the poets we are reading do. Students can post their poems in Canvas throughout the semester to get feedback from instructors and classmates and will do a workshop of these poems late in the semester.

Scientific abstract drawn from the topic of a poem (with research). In this assignment, you will look at the poetry we have read, or poems in works that you know or those suggested by the instructor and explore the scientific information presented therein. It need not be directly scientific to start with. For example, Elizabeth Bishop presents the idea of water in various forms in her poem “Sestina”: there are tears, steam, raindrops, tea. You would write a scientific abstract about how Bishop’s, metaphors distort how the cycle actually works. Or Katharine Coles writes in a poem about how she “feels” the presence of a virus, suggesting both that viruses are “alive” which they strictly speaking are not but that they can be discovered with the mind and not the microscope. This assignment is less about “debunking” art, than it is about how and why the different traditions do (or don’t) think differently.

Testing the science in literature This assignment begins where the previous one ends and asks you to go one step further. In one of the literary pieces you read (assigned or of your choosing), you will parse out a scientific hypothesis and put it to the test. You might do an experiment, interview a scientist on campus, or do some research on the plausibility of what is presented. What Dr. Griffiths in the English department calls “science fact versus science fiction.”

Science in popular culture Choose a piece of popular culture and talk about how scientists are represented. What is the rhetorical purpose? Why are mad scientists mad? How come so many science fiction movies adopt the same themes as cowboy movies? Why is science associated with humorlessness?
Final project: “Where metaphors and science collide”: You will design this project on your own. It might include an experiment, research, literary analysis, film, or television. What are the whys and hows? This will also be presented in a poster session.

Syllabus

Week 1 The Ghost in the Machine: Interrogating the Opposition Between Science and Art (“Einstein, History, and Other Passions” Gerald Holton)

Week 2 Poets, Scientists, and Other Dreamers (Auden “Ode to Terminus” Symborska “The Experiment,” Stoppard “Arcadia” (text or mp3), Katherine Coles (theoretical physics and its metaphors)

Week 3 A Rose By Any Other Name: How Is An Algebra Problem Like Music or a Poem? (Presentation on math as a language: the elegance and beauty of mathematics)

Week 4 Literature Does Science: Mary Shelley’s Frankenstein and Y the Last Man

Week 5 Discovering Your Own Epistemology: How Do You Know What You Know? (Metaphors We Live By, selected chapters), a poem about science and a hypothesis about a poem (packet of class readings).

Week 6 Through a Glass Darkly: What Happens When One Discipline Appropriates Another (Doctorow’s Waterworks and the problem of the mad scientist)

Week 7 Workshopping Your Poem and Testing Your Hypothesis

Week 8 @CharlesDarwin: Evolution and the Family Breakfast Table (Darwin, His Daughter, and Human Evolution)

Week 9 Darwin Goes to the Movies (Creation, the movie based on Darwin, His Daughter, and Human Evolution) Workshopping the poems.

Week 9 Portrait of the Scientist as a Young Artist and Vice Versa: Poet Healers and Safe-Cracking Physicists (selected physician poets and Feynman graphic biography)

Week 10 The Why of X: Women in Science and Literature (selections from The Dark Lady of DNA and Miss Leavitt’s Stars, Letter from Carolyn Herschel (poem)
Week 11 Portraying Women in Science in Science Fiction: Contact, the movie, and Bellwether

Week 12 Workshopping Your Final Project

Week 13 Live Scientists and Poets: A Panel About Epistemology

Week 14 Poster Presentation for Final Project