

**Final Examination questions:**

Include the *number* of the question that you are answering. These are due **Thursday, December 6, at midnight if submitted electronically [doelr@geo.oregonstate.edu ]**. **Otherwise please drop off exams anytime before 4:00 pm in the Dept of History, 306 Milam Hall.**

**Short essays (choose two of the following)**

[1/2 of exam; aim for approximately 1.5 to 2 double-spaced pages *each*]

1) What particular factors influenced the participation of women and minorities in science during the twentieth century? How did these factors change through time? Draw on lectures and readings, including Djerassi and Stent [Watson].

(2) How well does the concept of “Big Science” illuminate the history of science after 1900? In what ways does it fail to describe significant developments in 20<sup>th</sup> century science? [Hint: recall the definition of ‘Big Science’ developed in our readings as well as lectures.]

(3) In what ways did World War II and military funding affect research in the physical and biological sciences (especially in America)? How did military patronage affect the shape, character, and practice of science, in contrast to the situation in the early twentieth century? Use evidence presented in (among others) Smith, Cassidy, Badash, Doel, and Bowler to illuminate and strengthen your arguments. (You might wish to compare military patronage to other forms and styles of twentieth century patronage for science.)

**Long essay (choose one of the following)**

[1/2 of exam; approximately 3-4 double-spaced pages]

(A) Consider scientific controversies. What factors do scientists consider when evaluating scientific evidence and theories? Describe and discuss the roles played by personal networks, scientific publications, reputations of instruments and practitioners, and disciplinary allegiances in developing your answer. Choose at least two examples, one from the first half of the twentieth century, one from the post-1945 era, and analyze each carefully to examine this issue. To what extent are scientific ideas independent of, or conditioned by, surrounding cultural, political, and philosophical currents?

(B) Discuss the significance of evolutionary views of natural phenomena [put another way, how scientists understood changes in nature over time] in at least two scientific disciplines in the twentieth century (stronger essays will include three). Draw on course lectures as well as your readings (including Bowler, Oreskes, Smith, Wright, and Brush),

and be sure to provide concrete examples to support your arguments and discussion.

Please remember: editing and proof-reading will count.