

Scientific Revolutions Essay Questions — Spring Term

Please select **ONE** of the four following questions and compose a thoughtful, 5-page, double-spaced (about 1200-1400 word) essay in response. Your answer should incorporate material from the readings, lectures, and videos, as appropriate. Use the primary source texts (in Baigrie's *Scientific Revolutions: the Primary Texts*) to support your argument; do not simply summarize the texts, but give relevant quotations, evidence, and logical reasons for your argument. You need not go beyond the materials presented and discussed in lectures, although there is no penalty for seeking out other information. All sources must be properly cited (in a citation system of your choice); failure to do so is plagiarism and will be an automatic failure.

This assignment is worth 15% of your final grade and is due in class on Wednesday **15 March 2000**. Papers that run over 5 pages will be graded on only the first 5 pages. Late papers will incur a 2% per day penalty until turned in and may be handed to the professor or the IHPST main office in room 316 of Victoria College ("Old Vic" - above the Vic Bookstore). As with all formal writing, spelling and grammar count and plagiarism is inadmissible.

Q1: Compare Paracelsus' conception of matter with that of Joseph Priestly, as evidenced by their primary source readings. Consider how each scientist defines matter and how they can work with it (*i.e.*, what they can *do* with it). What are the merits and demerits of *both* systems?

Q2: Consider Isaac Newton's *Rules of Reasoning in Philosophy* (pp. 156-8 in Baigrie) and see how well they apply to one of the other experimental scientists in the reader. Describe how the other scientist did his work and then evaluate whether they followed Newton's rules.

[You may use the reading of any scientists who came chronologically *after* Newton, although Cavendish, Volta, Ørsted, Röntgen, or Faraday (#27) might be your more appropriate options.]

Q3: Compare the explanatory power of J.B. Lamarck's model of evolution with that of Charles Darwin. Based solely on the two readings, why did Darwin's view triumph?

Q4: Having read James Watson's *The Double Helix*, compose a book report which addresses the question of how much personal rivalries and competition play into the development of the idea of DNA. Consider how personal connections might help the development and how much personal rivalries might hinder (or at least affect) that same development.
