

## **HISTORY OF ALCHEMY**

HIST 302 - Fall 2011  
MWF 2:30 – 3:20, UNIV 219

### **I. ASSIGNED READINGS**

You are required to purchase a textbook and an i>clicker remote for in-class participation. Both the textbook and the i>Clicker remote are available for purchase/rent at any Purdue University Bookstore.

#### Textbook:

Linden, Stanton J. 2003. *The alchemy reader: from Hermes Trismegistus to Isaac Newton*. New York: Cambridge University Press.

One copy for the textbook has also been placed on reserve at Hicks Undergraduate Library, and available only at the library (ask Circulation Services at the front desk). Texts are assigned daily to be discussed in class: some available in the textbook, some to be found in pdf. format, posted on the Blackboard LEARN (the online course website). The texts (primary and secondary sources) must be brought in the class. Discussions of these texts count for participation (see the class schedule below).

### **II. OBJECTIVES:**

The course investigates the history of alchemy and specific non-rational methods employed by many scientists to promote rational discoveries. The course is mainly focused on European alchemy, with few references to Middle Eastern and Arabic alchemy. It spans the period from Antiquity to Renaissance and Early Modern period, and also touches upon nineteenth-century “occult fever” and obsession with alchemy. The course is interdisciplinary and investigates both history of alchemy as well as the more general history of science, based on a variety of primary sources such as from pre-historic archeological evidence of proto-science to pre-Copernican heliocentric attempts (as early as ninth-century Carolingians or twelfth-century Byzantines), or from Descartes’ dreams preceding his discovery of complicated math in sixteenth-century to German chemist Kekulé and his vision of the “sacred snake” *ouroborus* that helped him understand the true chemical formula of the benzene, or from Swedenborg’s engaging with spirits before publishing his contributions to science, to Parsons’ experimenting with occult séances while discovering rocket fuel, etc.

### **III. GUIDELINES:**

#### **A. Class attendance:**

Attendance is mandatory and will be checked regularly. Each student will be permitted three absences, for which it will be automatically assumed that s/he has a valid excuse. After the three unexcused absences, 1% will be deducted from the final course grade for each missed class, unless it is accompanied by a written excuse from a doctor, academic counselor, coach, etc. **Students who arrive late or leave early should confer with the instructor, either before or after class, otherwise they may also be marked absent.**

**B. Note:**

Make good use of the office hours. Feel free to consult with the instructor during your progress through the course. The time to seek help is when you begin to experience a problem, not at the end of the semester. Most of the course will be based on LEARN (Blackboard) communication and it will benefit mainly from its help. It is your duty to check EVERY DAY the LEARN website, for new information, powerpoint slides, links, homework, notes and grades that may be posted, etc. Information about how to access your Blackboard will be shown in the class or per request during the office hours.

**A word about learning and reading.** This course is built on the assumption that students want to be **active** learners, not passive learners. It assumes that students will work outside class at least 9 hours per week. It assumes that they will attend class regularly and listen attentively to lectures, that they will pause in their reading to think about what they have read, that they will participate actively in discussions, and that they will ask questions to push the limits of their knowledge. A 300-level course at Purdue University is not a high school course. The best way to meet the challenge is to keep at it: do all the readings every week, **concentrate** on what you're reading, **think** about what you're reading.

The **textbook** and the **pdf documents** have been carefully chosen to provide a broad overview of history of alchemy. For most weeks of the semester, students are expected to **read** the assigned texts. Weekly lectures are keyed to the weekly readings and complement each other. **It is important to keep up with the readings on a weekly basis. Readings will assume knowledge of the lectures' content.** Discussions will take place during the scheduled discussion sections of the class. The reading assignment for this course averages to 54 pages per week, a modest amount for a 300-level history course at a major research university.

**C. Course Evaluations:**

During the last two weeks of the semester, you will be provided with an opportunity to evaluate this course and your instructor. To this end, Purdue has transitioned to online course evaluations. On Monday of the fifteenth week of classes, you will receive an official email from evaluation administrators with a link to the online evaluation site. You will have two weeks to complete the evaluation. Your participation in this evaluation is an integral part of this course. I strongly urge you to participate in the evaluation system. If 90% of the class succeeds in submitting their evaluations online by the deadline, **then 1 point extra-credit** will be added to your entire course-grade.

**D. i>clicker:**

The i>clicker is a response system that allows you to answer questions I pose during class, and you will be graded on that feedback and/or participation. In order to receive this credit, **you will need to register your i>clicker remote online** within the first [amount of time set by instructor] of class. You must have come to class at least once and voted on at least one question, in order to complete this registration properly. Once you have purchased or already voted on a question in my class, go to the course page on Vista Blackboard and click on the tab "REGISTER YOUR ICLICKER HERE". Complete the box with your i>clicker registration number located on the back of the remote, as shown on the screen on Vista Blackboard.

**E. Cheating / Plagiarism:**

Plagiarism refers to the reproduction of another's words or ideas without proper attribution. University Regulations contains further information on academic dishonesty. Plagiarism and other forms of academic dishonesty are serious offenses, and will be treated as such in this class. You are expected to produce your own work and to accurately cite all necessary materials. Cheating, plagiarism, and other dishonest practices will be punished as harshly as Purdue University policies allow. **Any instances of academic dishonesty will likely result in a grade of F for the course and notification of the Dean of Students Office.** Also, using the i>clicker of another student (regardless of whether s/he has been

physically present or absent) leads to the accrual of points for that student and thus constitutes cheating. Both involved parties would effectively sustain a penalty.

#### **E. Disclaimer:**

In the event of a major campus emergency, the above requirements, deadlines and grading policies are subject to changes that may be required by a revised semester calendar. Any such changes in this course will be posted once the course resumes on Blackboard or can be obtained by contacting the professor via email or phone. Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Disability Resource Center in room 830 Young Hall to coordinate reasonable accommodations for students with documented disabilities.

#### **IV. ASSESSMENT:**

Attendance Each unexcused absence beyond the first 3 absences, will count 1% from the semester grade.

Participation **20 %** In-class activities: individual and group assignments, interactive maps, lectures include iclicker participation, as well as discussions: weekly assigned primary source text to be read & in-class group work and comments.

Symbols **15 %** Each alchemical symbol has to be summarized and stored in a folder. 1 point each summary; you may submit 15 summaries from a total of 20 summaries; you may skip 5 at your own choice. This homework is done individually.

Homework **10 %** Each lecture is followed by an open-book quiz to be completed at home on LEARN (Blackboard).

Midterm **15 %** 20 multiple-choice questions/0.5 point each question.

In-class Quiz **10 %** Not to be confused with the built in quizzes! Each in-class quiz consists of 5 to 10 multiple-choice questions, occasionally assigned, not announced in advance. Therefore, one should be prepared for a quiz on a daily basis.

Essay **10 %** Choose any preferred alchemical symbol from the textbook or lecture and write a short history of it (where is to be found this symbol, in what sources), analyze its origins, and explain its symbolic meaning. Prior to the final version paper, 3 drafts will be submitted only for feedback - no grading. Use wisely the office hours, follow the feedback, and consult the writing workshops.

Final exam **20 %** It consists of 20 multiple choice questions/ 0.5 point each. Plus 2 essays/ 5 points each, from the list of essays available on the STUDY GUIDE. Each of the two *small essays* has to be answered in a short paragraph/length: 1/2 of a page.

Biography **+3 %** Three take-home assignments for 3 points extra-credit added to the entire course grade. Choose three favored alchemists and write a short biography for each.

Evaluations **+ 1 %** Course evaluations completion adds a 1 point extra-credit to the semester grade.

Distribution: A: (90-100%) B: (80-89%) C: (70-79%) D: (60-69%) F: (0-59%)

## V. CLASS SCHEDULE

### January

07 PRESENTATION Syllabus discussion, introduction to the course. What is Alchemy?  
09 Alchemical Apparatus (part 1); Sun and Moon Symbols;  
11 *Tabula Smaragdina* (Textbook Reading 1)  
14 Early History. Origins of Alchemy: What do sources say about the origins of alchemy?  
16 Egyptian Alchemy  
18 Egyptian Alchemical Papyri: *Leyden and Stockholm Papyri* (Textbook Reading 6)  
21 NO CLASS: Martin Luther King Holiday  
23 The Four Elements, Early Greek Philosophers  
25 Plato (Reading 2), Cosmos, Anima Mundi and Matter; The Unity of All (the One)  
28 Babylonian Alchemy: magic at the oven, and metals in the bowels of Mother Earth  
30 Doctrine of the Two Exhalations

### February

01 Aristotle (Reading 3)  
04 Occult Origins of Math and the ancient/modern Calendar;  
06 alchemical symbols  
08 Pseudo-Democritus (Reading 4)  
11 Greek Qabalah, Pythagoras, and Magical Squares in Alchemical Medicine  
13 Jewish Kabbalah and the Quest for Divine Names in Alchemy  
15 How to read Alchemical Texts  
18 Shamanism and herbs: alchemical transformations. Mysterious Origins of Alchemical Symbols.  
20 Eleusinian Mysteries and Bacchanalia. Divine Potions.  
22 Hellenistic Alchemy: Cleopatra the Alchemist and Zosimos of Panopolis (Readings 5 and 7)  
25 *Ouroborus* Symbol  
27 The Crow Symbol

### March

01 How to read Alchemical Texts  
04 Phases and Sub-Phases in Alchemy  
06 Albedo and Rubedo  
08 How to read Alchemical Texts  
11-16 NO CLASS: Spring Break

### 18 MIDTERM

20 Byzantine Alchemy  
22 Stephanos of Alexandria, Pseudo-Teophrastos (Readings 8 and 9)  
25 Arabic Alchemy; States of Matter;  
27 Substances and Alchemical Waters; Theory of Two Vapors  
29 Khalid, Jabir and Pseudo-Geber (Readings 10 and 11)

### April

01 Medieval Alchemy. Roger Bacon, Albertus Magnus, Secret Sciences of Plants, and Minerals  
03 Albertus Magnus and Roger Bacon (Readings 13, 14)  
05 Nicolas Flamel, The Quest for Immortality and Gold  
08 Johannes Trithemius, Alchemy and Ciphering  
10 Flamel (Reading 15)  
12 Paracelsus' Alchemy, Magic, Potions, Medicine and Pharmacy; Doctrine of Three Seeds. Dr. Faust and Alchemy. Shamanic and Paracelsian Origins of *Faust*

15 John Dee, The Queen's Conjuror and Alchemist; Machiavelli in Love; Astrology, Elixirs, Potions;  
Leonardo DaVinci: Science, Magic and Alchemy  
17 Paracelsus (Reading 18)  
19 Newton' Secret Experiments and Alchemical Symbols  
22 Newton (Reading 27)  
24 Luigi Galvani' Secret. The Occult Romantic Age: Alchemy, Science and Frankenstein  
26 REVIEW SESSION

**Exam Week: April 29 – May, 04 / Final Exam TBA**