2013

111 Our Universe: Forensic Studies Labrotory

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Goal: Hands on experience with forensic techniques

CORE CURRICULUM GOALS AND STUDENT LEARNING OUTCOMES of this course:

GOAL 1: Students will be effective communicators in writing and orally
Students will formulate clear and arguable theses, supported by evidence drawn from appropriate sources

GOAL 2: Students will be critical thinkers
Students will analyze and interpret texts, images, objects, artifacts, and quantitative and qualitative data
Students will evaluate the strength of an argument or claim and its evidence

GOAL 4: Students will be able to understand and appreciate the arts, humanities and science disciplines, and reflect on connections among these studies
Students will utilize mathematical and logical reasoning and the language of mathematics with its own symbols, syntax, and semantics.

Components:
You will perform 10 experiments which will be assessed through short assignments. The labs will sometimes cover material from the lecture. Some labs are independent from the lecture, therefore you need to prepare in advance for all labs.

Forensic photography
Fracture Patterns in glass
Face Bertillonage
Blood Typing
Blood spatter
Examination of Hair
Identifying Finger Prints
Determination of the Time of Death
Voice Analysis
Fluorescent Scavenger Hunt
Cryptography

In addition there will be one lab exam. The date will be announced in class.

Grading:

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Lab assignments</td>
<td>70%</td>
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<tr>
<td>Lab exams</td>
<td>30%</td>
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<tr>
<td>Total</td>
<td>100%</td>
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The grading is based on the following standards:

1. Critical Thinking:
   **Explanation of issues**: clearly describe the issue/problem to be considered critical and deliver all relevant information necessary for full understanding.
   **Evidence**: Select and use information to investigate a point of view or conclusion. Take information from source(s) with enough interpretation or evaluation to develop a comprehensive analysis or synthesis. Question the viewpoints of experts.
   **Influence of context and assumptions** Thoroughly (systematically and methodically) analyze your own and others' assumptions and carefully evaluate the relevance of contexts when presenting a position.
   **Your position (perspective, thesis/hypothesis)** should be imaginative, taking into account the complexities of an issue.
   **Your conclusions and related outcomes (implications and consequences)** should be logical and reflect your informed evaluation and ability to place evidence and perspectives discussed in priority order.

2. Quantitative Literacy:
   **Interpretation**: Be able to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words). Provide accurate explanations of information presented in mathematical forms. Make appropriate inferences based on that information. For example, you should be able to accurately explain the trend data shown in a graph and make reasonable predictions regarding what the data suggest about future events.
   **Representation**: Be able to *convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)* Skillfully convert relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding. Competently convert relevant information into an appropriate and desired mathematical portrayal.
   **Calculation**: All your calculations should be successful and sufficiently comprehensive to solve the problem. Your calculations should also be presented elegantly (clearly, concisely, etc.)
   **Application / Analysis**: Be able to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis. You should use the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.
   **Assumptions**: Be able to make and evaluate important assumptions in estimation, modeling, and data analysis. Explicitly describe assumptions and provide compelling rationale for why each assumption is appropriate. Show awareness that confidence in final conclusions is limited by the accuracy of the assumptions.
   **Communication**: Use quantitative information in connection with the argument or purpose of the work, present it in an effective format, and explicate it with consistently high quality.

**Attendance:**

Attendance is mandatory, and no make-up labs will be allowed. Absences due to family or medical emergencies will be considered on a case by case basis.

**Scale:**

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<tr>
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<td>Grade</td>
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