SYLLABUS

PERSPECTIVES ON SCIENCE AND MATHEMATICS (PHIL 2314-XXX)
THE UNIVERSITY OF TEXAS AT ARLINGTON
xx AUGUST 20xx

Instructor: XX
Classroom: XX
Meeting time: XX
Office: XX
Office hours: XX
E-mail: XX
Text: XX

Course description and purpose statement.

Topics and episodes in the history of science and mathematics from a philosophical point of view. Students are brought to understand that science has a fascinating history, is underpinned by deep philosophical presuppositions, and depends upon special social and cultural factors for its continued growth and revision.

In this course we cover topics and episodes science and mathematics from an historical and philosophical point of view. The overall aim is to give students a sense of the history and context of the development of the scientific disciplines. The idea of ‘science’ as a unified discipline, with its own rules and practices, and as distinct from philosophy and theology is a much more recent development than many of us realize. We examine this evolution of the concepts, methods, and worldviews underpinning the rise of science and mathematics through the ages, and their social and cultural contexts. The course is arranged around the broad topic of frameworks for understanding science and mathematics. We will examine some of these frameworks, and come to understand the concept of evaluating the practices and norms of science and mathematics from the outside. We will look at several case studies of historical events in these disciplines through the prism of these frameworks. The outcome is for students to acquire a more sophisticated understanding of the practices of science and math, but also to widen their knowledge of the history of these disciplines.

This course satisfies the University of Texas at Arlington core curriculum requirement in Language, Philosophy & Culture.

Core curriculum objectives in the Language, Philosophy & Culture section.

- (CTS) Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
- (CS) Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication;
• (SR) Social Responsibility: to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national and global communities; and
• (PR) Personal Responsibility: to include the ability to connect choices, actions and consequences to ethical decision-making.

Learning outcomes.

General:
The successful student will acquire a nuanced understanding of the social and cultural forces that have shaped the history of these disciplines, and continue to affect the appropriation of the sciences today.

Specific:
Students who attend classes, complete readings and attend to in-class discussions will (1) describe the historical and philosophical development of aspects of science and mathematics (evaluated by discussion posts (CTS, CS)); (2) describe several analytic frameworks for understanding the history and philosophy of science and mathematics (evaluated by research paper, final exam (CTS, CS)); (3) analyze the history and content of evolutionary theory (evaluated by discussion posts, final exam (CTS, CS)); (4) express ideas and opinions clearly and effectively in formal written and oral communication (evaluated by research paper and class presentations (CS)); (5) develop high quality research skills including (a) searching for relevant materials, (b) evaluating the provenance and reliability of resources, (c) identifying resources specific to and available for researchers and the general public and (d) finessing citation and bibliographic skills (evaluated by research paper (CTS, CS)); (6) work effectively in a collaborative environment and provide and accept useful peer review of work (evaluated by peer reviews of research papers (CTS, CS, PR, SR)).

Signature assignments. The following assignment will be used to assess the student’s level of achievement of the Core Curriculum Objectives:

1. Each student will develop a small research project in which the objective is (a) to take a position on a matter of personal and social responsibility vis-à-vis science or mathematics (such as research integrity, private sector data privacy, etc.) and support that position with reasons; and (b) write an essay setting forth the arguments. For example, the student might choose to examine violations of the responsible conduct of research in the sciences. The student would need to formulate standards for the responsible conduct research (or examine existing standards or the history and development of such standards), describe the moral principles behind those standards, and discuss the importance of those standards from two points of view: (1) What does the internalization (or abrogation) of those standards reflect about the individual agent and their personal responsibilities? (2) What is the social cost of the abrogation of these standards and the social cost of enforcing them? The student’s essay (3-5 pages) will be evaluated according to four rubrics as applicable—see the following pages of the syllabus (note that the “Ecology” component of
the Social Responsibility Rubric below may not apply to all signature assignments; in such cases, the Social Responsibility Rubric will be adjusted appropriately. (Critical Thinking Skills, Communication Skills, Social Responsibility, Personal Responsibility)

[The remainder of the syllabus will be filled in by the instructor and will include the mandated policy statements of UT Arlington.]
COMMUNICATION SKILLS COMPETENCY

Competency Statement: Students will demonstrate effective written, oral, and visual communication.

Operational Definition: Upon completion of 30 hours in a degree plan, students will demonstrate effective written and oral communication using appropriate sources, documentation, and visual design elements.

Benchmark: 70% of all artifacts will score a 3 or higher.

Description of Assignments (Artifacts of Student Work): Assignments to be assessed for the communication competency would require students to present a grammatically correct essay or speech effectively organized with an introduction, conclusion, thesis statement, supportive reasoning, and appropriately documented evidence. If the assignment is an oral presentation, the assignment should also require effective verbal and nonverbal delivery. Visual design elements should be incorporated into any communication assignment. Visual elements include, but are not limited to graphs, tables, charts, slides, streaming video, etc.

Definitions of Concepts

1. Focus – is the extent to which the content of the essay/presentation corresponds to the thesis statement. In other words, good focus means that the thesis statement drives the whole document. Each section, then, focuses on presenting and arguing the thesis statement with logical reasoning, supportive evidence, and correct documentation.

2. Organization – relates to the order in which ideas are presented in support of the thesis statement. The introduction, body, and conclusion are developed in a logical, sequential order with clear transitions, and evidence is organized within each section. An artifact with good development includes supportive reasoning and evidence that build on each other as the document unfolds.

3. Assignment’s Requirements – relate to what the instructor has set forth in the assignment. A communications artifact can be delivered well in all aspects and not respond to the assignment.

4. Style – is the way in which words and sentences are put together. It involves word choice, sentence structure, and tone appropriate for the rhetorical situation. Different styles can be effective in different genres; however, any style in academic communication should demonstrate control of sentence-level errors such as grammar problems, misspellings, improper use of punctuation, etc.

5. Vocal delivery – includes elements such as volume, variety, fluency, rate, pronunciation, articulation, and vocal pauses.

6. Nonverbal Communication – includes aspects such as eye contact, gestures, movement, vitality, facial expressions, and proper use of lectern and visual aids where appropriate.
### Communication Skills Rubric

<table>
<thead>
<tr>
<th>Point Value</th>
<th>Detailed Description of Point Assessment</th>
<th>Simple Explanation</th>
</tr>
</thead>
</table>
| 5           | An artifact scoring a 5 demonstrates the following:  
* Focus: Includes all elements that build upon the thesis  
* Organization: Has an effectively creative pattern of development  
* Assignment's Requirements: Enhances the assignment  
* Style: Has a flair for style with sustained grammatical accuracy  
* Vocal Delivery (if oral presentation): Is artful in the use of delivery and style  
* Nonverbal (if oral presentation): Includes strong eye contact, uses mannerisms that enhance the speech, and appears spontaneous and natural | excellent |
| 4           | An artifact scoring a 4 demonstrates the following:  
* Focus: Includes all elements that effectively support the thesis  
* Organization: Has a clear and consistent pattern of development  
* Assignment's Requirements: Responds clearly to the assignment  
* Style: Has an effective style for the rhetorical situation with few interfering sentence-level errors  
* Vocal Delivery (if oral presentation): Is presented extemporaneously and conversationally without vocalized pauses (IE: um, er, like, you know)  
* Nonverbal (if oral presentation): Has eye contact with the majority of the audience and mannerisms that enhance the speech | good |
| 3           | An artifact scoring a 3 demonstrates the following:  
* Focus: Has a clear thesis but one or two digressive or unsupportive elements  
* Organization: Has a few minor problems (missing transition, short introduction and/or conclusion, etc.)  
* Assignment's Requirements: Meets the assignment's requirements  
* Style: Has an inconsistent style and/or sentence-level errors, but meaning is not compromised  
* Vocal Delivery (if oral presentation): Is presented extemporaneously with adequate vocal variety  
* Nonverbal (if oral presentation): Has adequate eye contact and mannerisms that neither distract nor enhance | competent |
| 2           | An artifact scoring a 2 demonstrates the following:  
* Focus: Involves a missing thesis and/or insufficient support  
* Organization: Involves missing transitions, introduction, and/or conclusion  
* Assignment's Requirements: Ignores several requirements  
* Style: Has an obstructive style and/or contains sentence-level errors that begin to hoard the reader’s attention  
* Vocal Delivery (if oral presentation): Is stiff with little vocal variety  
* Nonverbal (if oral presentation): Is very dependent on notes and has some distracting mannerisms | marginal |
| 1           | An artifact scoring a 1 demonstrates the following:  
* Focus: Involves a missing thesis, no support, and/or plagiarized evidence  
* Organization: Rambles from one thing to another with no attempt at a consistent development  
* Assignment's Requirements: Does not meet the majority of requirements  
* Style: Has an offensive style and/or includes sentence-level errors that are glaring throughout the paper and meaning is lost  
* Vocal Delivery (if oral presentation): Is obviously unrehearsed in its delivery  
* Nonverbal (if oral presentation): Is read and mannerisms distract | poor |
CRITICAL THINKING SKILLS COMPETENCY

**Competency Statement:** Students will engage in creative and/or innovative thinking, inquiring analysis, evaluation, synthesis of information, organizing concepts, and constructing solutions.

**Operational Definition:** Students will demonstrate the successful application of higher order analyses, innovative interpretation of evidence, and creative cognitive processes.

**Benchmark:** 70% of all artifacts will score a 3 or higher.

**Description of Assignments (Artifacts of Student Work):** Examples may include, but are not limited to: research, lab reports, writings, video compilations or presentations which include analysis, musical compositions, analysis/solutions of problems/case studies, use of Scientific Method, prototype designs, sequencing formularies, justification of results, and explanation of reasoning. These assignments can be completed by an individual or in a group environment.

**Definitions of Concepts**

1. **Inquiry** – A close examination or interpretation of a matter. Critical inquiry may involve the analytical interpretation of evidence and arguments. Interpretive inquiry may include an investigation into alternative points of view. Brainstorming methods or novel and untested solutions to a problem can be a part of the inquiry process.

2. **Analysis** – A critical examination of explanations and problem-solving methods. Analysis involves the ability to dissect, fully understand, and explain individual ideas. Analysis can also be used innovatively by pinpointing problem-solving methods found through the examination of a problem, task, etc.

3. **Synthesis** – Interlacing individual argument components so that a meaningful, coherent whole can be formed. Synthesis can use logical deductions to form scientific/mathematical arguments. Synthesis can also be used to effectively present a new or existing concept.

4. **Product** – The result produced by using evidence to form a coherent conclusion or the result produced by taking an innovative approach to a given task. The product is the end result and as such should either supply a coherent conclusion, solution, and/or product based on evidence or should use innovation to form a new and well-structured conclusion, solution, and/or product.
<table>
<thead>
<tr>
<th>Point Value</th>
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<th>Simple Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>An artifact scoring a 5 consistently demonstrates the following:</td>
<td>excellent</td>
</tr>
<tr>
<td></td>
<td>- <strong>Inquiry</strong>: An exceptional examination of a matter through the interpretation of evidence, instructions, problems, tasks, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Analysis</strong>: Identifies and presents exceptional explanations of complex analyses OR identifies and promotes novel or alternative problem-solving methods.</td>
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<tr>
<td></td>
<td>- <strong>Synthesis</strong>: Identifies, organizes, and evaluates exceptional arguments OR presents well connected and holistically transformed ideas into original concepts.</td>
<td></td>
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<tr>
<td></td>
<td>- <strong>Product</strong>: Follows the evidence to present unambiguous conclusions, solutions, and/or products OR transforms the evidence/takes an innovative approach to a task to present innovative and novel conclusions, solutions, and/or products.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>An artifact scoring a 4 demonstrates the following:</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>- <strong>Inquiry</strong>: A thorough examination of a matter through the interpretation of evidence, instructions, problems, tasks, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Analysis</strong>: Identifies and presents thorough explanations of complex analyses OR identifies novel or alternative problem-solving methods.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Synthesis</strong>: Identifies, organizes, and evaluates thorough arguments OR presents obviously connected ideas.</td>
<td></td>
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<tr>
<td></td>
<td>- <strong>Product</strong>: Follows the evidence to present unambiguous conclusions, solutions, and/or products OR transforms the evidence/takes an innovative approach to a task to present innovative and novel conclusions, solutions, and/or products.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>An artifact scoring a 3 demonstrates the following:</td>
<td>competent</td>
</tr>
<tr>
<td></td>
<td>- <strong>Inquiry</strong>: An accurate examination of a matter through the interpretation of evidence, instructions, problems, tasks, etc.</td>
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<tr>
<td></td>
<td>- <strong>Analysis</strong>: Identifies and presents accurate explanations of complex analyses OR identifies appropriate problem-solving methods.</td>
<td></td>
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<tr>
<td></td>
<td>- <strong>Synthesis</strong>: Identifies, organizes, and evaluates accurate arguments OR presents connected ideas.</td>
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<tr>
<td></td>
<td>- <strong>Product</strong>: Follows the evidence to present mostly unambiguous conclusions, solutions, and/or products OR effectively uses the evidence/effectively approaches a task to present conclusions, solutions, and/or products.</td>
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<tr>
<td>2</td>
<td>An artifact scoring a 2 demonstrates the following:</td>
<td>marginal</td>
</tr>
<tr>
<td></td>
<td>- <strong>Inquiry</strong>: An incomplete examination of a matter through the interpretation of evidence, instructions, problems, tasks, etc.</td>
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</tr>
<tr>
<td></td>
<td>- <strong>Analysis</strong>: Identifies and presents incomplete explanations of complex analyses OR identifies inadequate problem-solving methods.</td>
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<tr>
<td></td>
<td>- <strong>Synthesis</strong>: Identifies, organizes, and evaluates incomplete arguments OR presents weakly connected ideas.</td>
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<tr>
<td></td>
<td>- <strong>Product</strong>: Somewhat follows the evidence to present unambiguous conclusions, solutions, and/or products OR somewhat uses the evidence/takes a somewhat effective approach to a task to present conclusions, solutions, and/or products.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>An artifact scoring a 1 demonstrates the following:</td>
<td>poor</td>
</tr>
<tr>
<td></td>
<td>- <strong>Inquiry</strong>: No examination of a matter through the interpretation of evidence, instructions, problems, tasks, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- <strong>Analysis</strong>: Does not identify or present explanations of complex analyses OR does not identify appropriate problem-solving methods.</td>
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<tr>
<td><strong>Synthesis:</strong></td>
<td>Offers no examination of arguments OR fails to connect ideas.</td>
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<td>---------------</td>
<td>-------------------------------------------------------------</td>
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<tr>
<td><strong>Product:</strong></td>
<td>Does not follow the evidence to present unambiguous conclusions, solutions, and/or products OR does not use the evidence/take an effective approach to a task to present novel conclusions, solutions, and/or products.</td>
<td></td>
</tr>
</tbody>
</table>
PERSONAL RESPONSIBILITY COMPETENCY

**Competency Statement:** Students will demonstrate the ability to connect choices, actions and consequences to ethical decision-making.

**Operational Definition:** Students will recognize the importance and impact of responsible personal behavior in society.

**Benchmark:** 70% of all artifacts will score a 3 or higher.

**Description of Assignments (Artifacts of Student Work):** Examples may include, but are not limited to:
- Relevant writing and research assignments
- Video compilations or presentations
- Case studies
- Field work assignments

**Definitions of Concepts**

5. **Identification** – The extent to which the understanding of the nature of the inquiry is indicated. Identification clearly pinpoints what information is being sought and what kind of analysis is necessary.

6. **Connections** – The use of research or content knowledge to enhance and clarify the argument/discussion.

7. **Response** – The extent to which a meaningful, personal connection is made to the ethical dilemma.
# Personal Responsibility Rubric*

<table>
<thead>
<tr>
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<th>Simple Explanation</th>
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<tbody>
<tr>
<td>5</td>
<td>An artifact scoring a 5 consistently demonstrates the following:</td>
<td>excellent</td>
</tr>
<tr>
<td></td>
<td>• <strong>Identification</strong>: The ability to identify and accurately describe complex ethical dilemmas from life situations and/or theoretical scenarios.</td>
<td></td>
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<tr>
<td></td>
<td>• <strong>Connections</strong>: Uses appropriate insights from two or more areas of study to make connections and elucidate ethical dilemma.</td>
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<tr>
<td></td>
<td>• <strong>Response</strong>: Recognizes connections to personal values and rules; thoroughly articulates sources of insights and relation to understanding of self; incorporates personal values in reasoned response.</td>
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<tr>
<td>4</td>
<td>An artifact scoring a 4 demonstrates the following:</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>• <strong>Identification</strong>: The ability to identify and describe ethical dilemmas from life situations and/or theoretical scenarios.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Connections</strong>: Uses insights from two or more areas of study to make connections and elucidate ethical dilemma.</td>
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<tr>
<td></td>
<td>• <strong>Response</strong>: Recognizes connections to personal values and rules; effectively articulates sources of insights and relation to understanding of self</td>
<td></td>
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<tr>
<td>3</td>
<td>An artifact scoring a 3 demonstrates the following:</td>
<td>competent</td>
</tr>
<tr>
<td></td>
<td>• <strong>Identification</strong>: The ability to identify and describe simple ethical dilemmas in scenarios from life situations and/or from theoretical scenarios.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Connections</strong>: Uses insights from more than one area of study to clarify ethical dilemmas.</td>
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<tr>
<td></td>
<td>• <strong>Response</strong>: Recognizes connections to personal values and rules as related to dilemma; adequately articulates sources of insights and relation to understanding of self</td>
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<tr>
<td>2</td>
<td>An artifact scoring a 2 demonstrates the following:</td>
<td>marginal</td>
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<tr>
<td></td>
<td>• <strong>Identification</strong>: Identifies, but has difficulty describing even simple ethical dilemmas in scenarios derived from everyday life situations.</td>
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<tr>
<td></td>
<td>• <strong>Connections</strong>: Uses insight from no more than one area of study.</td>
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<tr>
<td></td>
<td>• <strong>Response</strong>: Clarifies response to ethical dilemma vaguely in terms of rules or personal values; ineffectively articulates sources of insights and relation to understanding of self.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>An artifact scoring a 1 demonstrates the following:</td>
<td>poor</td>
</tr>
<tr>
<td></td>
<td>• <strong>Identification</strong>: Has difficulty both identifying and describing even simple ethical dilemmas in scenarios derived from everyday life situations.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Connections</strong>: Does not effectively use insight from any area of study.</td>
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<tr>
<td></td>
<td>• <strong>Response</strong>: Cannot clarify the response to ethical dilemmas even in terms of rules or personal values; does not articulate sources of insights and relation to understanding of self.</td>
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</tr>
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</table>

*This rubric was derived from the University of South Carolina’s “Goal 7” objectives and LEAP Value Rubrics.*

## SOCIAL RESPONSIBILITY COMPETENCY

### Competency Statement:
Students will demonstrate intercultural competency and civic knowledge by engaging effectively in local, regional, national and global communities.

### Operational Definition:
Students will demonstrate an understanding of and propensity towards social responsibility, and in particular provides evidence of becoming a socially responsible contributor in the areas of Citizenship, Social Justice, and Ecology.
**Benchmark:** 70% of all artifacts will score a 3 or higher.

**Description of Assignments (Artifacts of Student Work):** Assignments to be assessed may include work from any discipline which demonstrates appropriate knowledge, skill, or attitudes beneficial to intercultural civic endeavors. Examples include (but are not limited to):
- Relevant writing and research assignments
- Participation in community engagement projects with linked assessment
- Serving as peer mentor / tutor with reflection on experience

**Definitions of Concepts**

1. **Citizenship** – A review of one’s civic identity as it relates to the surrounding culture.
2. **Social Justice** – The treatment of others in a fair, nondiscriminatory and ethical manner.
3. **Ecology** - The study of the relationships between living organisms with respect to each other and their natural environment.
<table>
<thead>
<tr>
<th>Point Value</th>
<th>Description of Point Assessment</th>
</tr>
</thead>
</table>
| 5           | An artifact scoring a 5 consistently demonstrates **one or more** of the following:  
  - **Citizenship:** Demonstrates orally, in writing, and/or through projects and an understanding of the citizen’s proactive role in society, such as participating in the democratic process and contributing to one’s community AND/OR demonstrates orally, in writing, and/or through activities a clear inclination to participate in the democratic process and contribute to the community.  
  - **Social Justice:** Demonstrates orally, in writing and/or projects the ability to evaluate the issues of fairness, prejudice, discrimination, and ethical behaviors on the basis of critical thinking and the use of data and scientific information AND/OR demonstrates through projects and interactions in class and in the field the treatment of others in a fair, non-discriminatory manner while demonstrating respect and value for cultural diversity and differences.  
  - **Ecology:** Demonstrates orally and/or in writing clear understanding of the larger ecological issues related to the interaction or people, environment, science and technology. Understands how actions of individuals, businesses, governments, etc, impact that balance AND/OR participates in projects or activities that demonstrate appreciation and caring for the environment. |
| 4           | An artifact scoring a 4 consistently demonstrates **one or more** of the following:  
  - **Citizenship:** Demonstrates some awareness of the citizen’s role in society. However, is struggling with how important that role might be and the importance of one person within the system. Is open to further learning and improvement AND/OR demonstrates some inclination to participate in the democratic process. Contributes to the community and is open to further learning and improvement.  
  - **Social Justice:** Demonstrates some ability to access and evaluate issues and evaluate issues of fairness, prejudice, discrimination and ethical behavior based upon critical thinking and use of data and scientific information AND/OR mostly treats others in a fair, non-discriminatory manner. Mostly demonstrates respect and values cultural diversity and differences. However, is still uncertain about many circumstances and is developing further about these issues.  
  - **Ecology:** Demonstrates some understanding of ecological issues related to the interaction of people, environment, science and technology. Struggles to understand how individuals and institutional actions impact ecological balance. Is interested and open to learn more AND/OR demonstrates some appreciation and caring for the environment through projects or activities. |
| 3           | An artifact scoring a 3 demonstrates **one or more** of the following:  
  - **Citizenship:** Demonstrates elementary level of awareness of the citizen’s role in society. Gives little consideration to the importance or impact of the individual in society AND/OR demonstrates some reluctance to participate in the democratic process but displays some openness to further learning and improvement.  
  - **Social Justice:** Demonstrates elementary abilities in assessing issues of fairness, prejudice, discrimination and ethical behaviors based upon critical thinking and the use of data and scientific information AND/OR Shows signs of being unaware, disrespectful, and / or biased toward people of different backgrounds and life styles. However, is in elementary stage of awareness of this and is willing to learn more about these issues.  
  - **Ecology:** Demonstrates limited understanding of ecological issues related to the interaction of people, environment, science and technology. However, is interested in learning more about such interactions AND/OR demonstrates limited appreciation and caring for the environment. |
| 2           | An artifact scoring a 2 demonstrates **one or more** of the following:  
  - **Citizenship:** Demonstrates very poor understanding and / or clear misunderstanding of the citizen’s role in society AND/OR ignores any responsibility to participate in the democratic process. Reluctant to learn and improve in this area.  
  - **Social Justice:** Clearly cannot assess and evaluate issues of fairness, prejudice, discrimination, and ethical behaviors based upon critical thinking and the use of data and scientific information AND/OR does not respect nor value cultural diversity and differences. Shows signs of treating others in a discriminatory and prejudicial manner. Is not aware of these behaviors, or is not interested in learning more about these issues.  
  - **Ecology:** Demonstrates a very narrow view of the world based upon egocentrism. Extremely limited understanding of the interaction of people, environment, science and technology and has little interest to learn more AND/OR absence of any demonstration of appreciation or caring for the environment. |
| 1           | An artifact scoring a 1 demonstrates **one or more** of the following:  
  - **Citizenship:** Refuses to understand or rejects citizen’s role in society AND/OR exhibits blatant rejection of the democratic process. Not open to further learning and improvement in this area.  
  - **Social Justice:** Refuses to address issues of fairness, prejudice, discrimination and ethical and unethical behaviors AND/OR treats people with disrespect AND/OR is unfair and discriminatory to others who are different from self. Closed to new learning concerning the topic.  
  - **Ecology:** Refuses to address ecological issues related to the interaction of people, environment, science and technology. Struggles to understand how actions of individuals, businesses, governments, etc, impact that balance AND/OR participates in projects or activities that demonstrate appreciation and caring for the environment.
and technology. Driven by selfish motives and immediate gratification AND/OR demonstrates contempt for the environment AND/OR acts in ways that harm the environment.

*This rubric was derived from the California State University, East Bay “GE Social Responsibility 2006” rubric and LEAP Value Rubrics*