Description: Mathematics and Science in Life and History

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
</tr>
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<tr>
<td>EDU</td>
<td>5422</td>
<td>70243</td>
<td>2007</td>
<td>WEB</td>
<td>1.00</td>
<td>Toowoomba</td>
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</table>

Academic group: FOEDU
Academic org: FOE002
Student contribution band: National Priority Teaching
ASCED code: 079999

STAFFING
Examiner: John Green
Moderator: Bruce Waldrip

OTHER REQUISITES
State law in Queensland (Australia) requires that all adults working/undertaking professional experience/researching with children under the age of 18, in the state of Queensland are required to possess a current suitability card (Blue Card). (See "Other Requirements" for further information.) Also see: http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html

RATIONALE
It is recognised that many postgraduate students need the opportunity to investigate how history and philosophy impact on the development of mathematical and scientific concepts and how the application of that history and philosophy can influence the classroom so that learning is more authentic and engages students.

SYNOPSIS
Major concepts in physics, chemistry, earth science, astronomy and biology are investigated as well as the conditions of emergence of the theories and the methodology governing their acceptance or rejection. Theories will be considered in historical context from the seventeenth century to the beginning of the twentieth century. NOTES: 1. This course is available through INTERNET (WEB) DELIVERY ONLY. 2. There are NO print materials for this course. 3. For details of the technical requirements and accessing Internet study materials, please consult the following URL: http://www.usqonline.com.au.

OBJECTIVES
The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course students will be able to:
1. understand the historical and cultural development of science, mathematics and the evolution of knowledge in their discipline (Assignment 1)
2. understand the philosophical tenets, assumptions, goals, and values that distinguish science and mathematics from technology and from other ways of knowing the world (Assignment 1)
3. engage students effectively in studies of the nature of science and mathematics including, when possible, the critical analysis of false or doubtful assertions made in the name of science or mathematics (Assignment 1)
4. understand the processes, tenets, and assumptions of multiple methods of inquiry leading to mathematical or scientific knowledge (Both assignments)
5. engage effectively in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner (Assignment 2) and
6. have knowledge of the historical development of major areas of science, a grasp of mathematical and scientific reasoning, familiarity with some of the problems and issues in the philosophy of science and mathematics, and experience in critical thinking. (Assignment 2)

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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</thead>
<tbody>
<tr>
<td>1. Bases of decision making; Beliefs and values including worldviews</td>
<td>25.00</td>
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<tr>
<td>2. Models and developing thought; Environmental beliefs and values</td>
<td>25.00</td>
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<td>3. Influence of origin theories on thought and understanding</td>
<td>10.00</td>
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<tr>
<td>4. Relationship of freedom of thought and speech on learning; Factors affecting the development of chemical and physical thought throughout history</td>
<td>40.00</td>
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**TEXT and MATERIALS required to be PURCHASED or ACCESSED**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at [http://bookshop.usq.edu.au](http://bookshop.usq.edu.au) click 'Semester', then enter your 'Course Code' (no spaces).

**REFERENCE MATERIALS**

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.


**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Assessment</td>
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<tr>
<td>Directed Study</td>
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<tr>
<td>Private Study</td>
<td>70.00</td>
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</table>

**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
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</thead>
<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>100.00</td>
<td>50.00</td>
<td>19 Nov 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>100.00</td>
<td>50.00</td>
<td>19 Nov 2007</td>
</tr>
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</table>

(see note 1)

**NOTES**

1. Due dates to be negotiated between Course Examiner and student.

**IMPORTANT ASSESSMENT INFORMATION**

1 Attendance requirements:
   There are no attendance requirements for this course. However, it is the students’ responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2 Requirements for students to complete each assessment item satisfactorily:
   To satisfactorily complete an individual assessment item a student must achieve at least 50% of the marks.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without (prior) approval of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.

4 Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

5 Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the aggregate of the weighted marks obtained for each of the summative assessment items in the course.

6 Examination information:
There is no examination in this course.

7 Examination period when Deferred/Supplementary examinations will be held:
As there are no examinations in this course, there will be no deferred or supplementary examinations.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm or in the current USQ Handbook.

ASSESSMENT NOTES

1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.

2 Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner.

3 The examiner may grant an extension of the due date of an assignment in extenuating circumstances.

4 In the event that a due date for an assignment falls on a local public holiday in their area, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.

5 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.

6 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

7 When there is more than one marker for a single item of assessment, the distributed patterns and means for the different markers will be compared and marks adjusted if necessary.

8 The Faculty will normally accept only assessments that have been written, typed or printed on paper-based media, except for WEB courses.

9 Marking criteria will depend upon the nature of individual projects. Marking criteria are provided in course material as mark sheets/guides or as part of assignment specifications.

10 Student workload requirements are as required for the completion of the study and as negotiated between student and supervisor.

11 Summative assessment items will receive a numerical score. The course examiner is responsible for awarding grades.

OTHER REQUIREMENTS

1 Students will require access to e-mail and Internet access to USQConnect for this course.
IMPORTANT NOTE: Working with Children: State law in Queensland requires that all adults (including university students, pre-service educators, trainers, vocational teachers, industry educators) working with children under the age of 18, in the state of Queensland*, obtain approval before commencing such work. Many education courses include a practical component (professional experience, project work, research, assessment etc.) that may require engagement with children under the age of 18. It is your responsibility to ensure that you possess a current suitability card (Blue Card) before commencing any practical components of this course. DO NOT PARTICIPATE IN ANY PRACTICAL EXPERIENCE WITH CHILDREN UNDER 18 UNLESS YOU POSSESS A CURRENT 'BLUE CARD'. For further information: http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html. *If you are undertaking practical experience outside the state of Queensland, Australia you should check local requirements.

Students enrolling in WEB courses MUST have ongoing convenient and reliable access to the Internet in order to access course materials and participate in activities that will affect assessment. The levels of equipment required may change from time to time, with the most recent specification listed at http://www.usq.edu.au/currentstudents/computingstandards/default.htm. You can check whether your computer system meets these requirements from USQAssist (http://usqassist.usq.edu.au/).