# COURSE SPECIFICATION DOCUMENT

**NOTE:** ANY CHANGES TO A CSD MUST GO THROUGH ALL OF THE RELEVANT APPROVAL PROCESSES, INCLUDING LTPC.

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| **Academic School/Department:** | General Education |
| **Programme:** | Combined Studies |
| ***FHEQ* Level:** | 3 |
| **Course Title:** | Turning Points in the History of the Life Sciences |
| **Course Code:** | BIO 3140 |
| **Course Leader:** | Dr. Wayne J. Clark |
| **Student Engagement Hours:** | 120 |
| Lectures: | 45 |
| Seminar / Tutorials: | 0 |
| Independent / Guided Learning : | 75 |
| **Semester:** | Fall, Spring, or Summer |
| **Credits:** | 12 UK CATS credits<br>6 ECTS credits<br>3 US credits |

**Course Description:**

A unique mix of history and science, this course follows the history of the Life Sciences using historical and scientific *Turning Points*. The course explores changing conceptions of living beings within the context of the intellectual, cultural, religious and social preoccupations of the time and geographical areas in which they arose. Specific areas include the natural philosophy of ancient Egypt, Mesopotamia, Greece and Rome, early Islamic and Chinese medicine, the European Renaissance and the founding of a scientific approach to the study of life in the 18$^{th}$ and 19$^{th}$ centuries. The culmination of biological thought in the 19$^{th}$ century is exemplified by Mendelian Genetics and the Darwin-Wallace theory of evolution, and the discovery of DNA in the 20$^{th}$ century provides a capstone to 10,000 years of scientific biological thought, exemplifying *Unity in Diversity*.

**Prerequisites:**

PRE/CO-REQUISITE: MTH 3000 or Mathematics Assessment exemption

**Aims and Objectives:**

This course aims to expose students to an understanding of the natural and physical world around us through the historical development of the Life Sciences (specifically: general biology, medicine, anatomy) and the following themes which will be acknowledged in all the cultures discussed, and most of the scientific principles encountered:

- Unity in Diversity (the Richmond University motto!)
- What is everything, including us, made of?

The course will provide students with an understanding of the relationship between a biological understanding of the world and the way in which cultural, religious and social influences impinge upon the development and understanding of scientific ideas.
Students will develop a historical perspective of science – how current scientific thought is influenced by past ideas and how each historical period produces points of view which, however limited, also have their own rationality and meaning. Through examining the assumptions informing past science, students should learn tools by which to reflect more critically on the present scientific study of living organisms. Through exploring conceptions of living things students will be exposed to ideas which, although radically different from those of today, will nonetheless be found to be rich and fascinating.

**Programme Outcomes :**

3A(i,); 3B(i); 3C(i); 3D(i)

A detailed list of the programme outcomes are found in the Programme Specification. This is located at the Departmental/Schools page of the portal.

**Learning Outcomes:**

a) Students should be familiar with the establishment of civilizations, the flow of information within and between such civilizations, and the early interactions between science and philosophy.
b) Students should be familiar with the division of thought into the separate fields of science and philosophy by an exploration of the flow of ideas and the diverse personalities involved within Europe and The Middle East.
c) Students should be familiar with the rapid development of scientific ideas from the Renaissance onwards as developing technologies and ideas allowed accurate scientific experimentation and observation.
d) By the end of the course students should have a basic understanding of the relationship between culture, religion, philosophy, and biological science, and how the themes 'Unity in Diversity' and 'What is everything, including us, made of?' apply to most of the course material.

**Indicative Content:**

- Unity In Diversity
- What is everything, including us, made of?
- The History of the Life Sciences (general biology, medicine, anatomy)
- Basic Natural Philosophy: ancient Egypt/Mesopotamia, Greece, Rome
- Early Islamic and Chinese Medicine
- European Renaissance biology

- Spontaneous Generation
- Basic history of classification/taxonomy
- The history of cell discovery and structure
- Evolution
- The Germ Theory of infection
- The discovery of chromosomes and the structure of DNA

**Assessment:**

This course conforms to the Richmond University Standard Assessment Norms approved by Academic Council on 28 June 2012.

**Teaching Methodology:**

a) Formal lectures with PowerPoint and handouts.
b) DVDs
c) Reading assignments
d) Class discussion

**Bibliography:**

See syllabus for complete list of recommended reading.

## *IndicativeText(s):*

Lois Magner, "History of the Life Sciences", 2nd Ed. (1994) or 3rd Ed. (2002), Marcel Dekker.

*Please Note: The core and the reference texts will be reviewed at the time of designing the semester syllabus*

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Change Log for this CSD:

| Major or Minor Change? | Nature of Change | Date Approved & Approval Body (School or LTPC) | Change Actioned by Academic Registry |
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