

NEW COURSE

Department: ORIGINS INSTITUTE
Course Name: **ORIGINS 3D03**
ORIGIN OF LIFE
To be offered first in 2006-07
Date: November 2004

Calendar copy description:

ORIGINS 3D03: ORIGIN OF LIFE

Topics in the emerging field 'Astrobiology' will be explored: planetary system formation, conditions in extra-solar systems, criteria for defining and sustaining life, and 'extremophile' systems on Earth and, possibly, elsewhere in the solar system.

Three hours; one term.

Prerequisites: registration in Level III in the Origins Research Specialization or by permission of instructor.

Expected enrolment:

50

Enrolment limited? If so, why?

Yes, to ensure that an environment that is conducive to developing skills in independent scientific research and self-directed, problem-based, and inquiry-based learning is provided to students.

Other department(s) consulted.

Biochemistry, Biology, Chemistry, Geography and Geology, Mathematics and Statistics, Physics and Astronomy, Psychology, Associate Dean of Science, Dean of Science, Provost, President

Is this course cross listed? If so indicate course(s).

Resource implications.

A \$7500 teaching buyout has been secured for this course.

Detailed course content and reasons for introduction of course.

The emerging discipline known as 'Astrobiology' concerns studies about the origin of life on Earth and other terrestrial planets. That the discipline is expanding rapidly is evidenced by developments at NASA, first with the AMES Research Center and, more recently, with the Astrobiology Institute. This course will spearhead Astrobiology in undergraduate curricula in Canada. Among the topics covered will be extremophiles. These organisms live in hostile environments, like deep-sea hydrothermal vents or hot sulphur streams. Interest in these organisms involves their adaptation to these extreme ranges of habitable environments on our own planet – in the past and presently – and utilising these as analogues for conditions on other bodies in our solar system, such as Mars or Europa. A possible reading source that would accompany lecture sessions and course material will be *Rare Earth* (by Peter Douglas Ward and Donald Brownlee).