

SCHOOL OF BIOMOLECULAR & BIOMEDICAL SCIENCE

2710BBS - MICROBIAL PHYSIOLOGY

COURSE OUTLINE (BBS/01/03)

1.0 IDENTIFYING INFORMATION

Catalogue Number:	2710BBS
Course Title:	Microbial Physiology
Discipline Code:	0401
Program for which course is designed:	Bachelor of Science (Logan)
School:	Biomolecular and Biomedical Science
Faculty:	Science
Status of course within program:	Second Year Core, Microbiology Major
Credit point value:	10 CP
Prerequisites:	NIL
Prior Assumed:	1001BBS/BBS1001/BBS1001L Human Biology: The Human Organism 1002BBS/BBS1002/BBS1002L Cell and Molecular Biology
Incompatible	BBS2710 Microbial Physiology
Year and semester:	Year 2 Semester 1
Year of offer:	2003
Course Convenor:	A/P Bharat Patel Office Location: N34 2.36 Office Phone: 3875 7695, Fax: 3875 7773 Email address: B.Patel@sct.gu.edu.au
Teaching team members:	A/P Bharat Patel and sessional staff

2.0 OBJECTIVES:

The purpose of this course is to introduce microbial physiology and to provide an understanding of the effects of environmental changes on cell structure and metabolism. An understanding of these concepts and principles is important for a career in applied microbiology including food microbiology.

3.0 BRIEF DESCRIPTION:

This course will provide an insight on the basic principles of microbiology, and will address the functioning of bacterial cells. It will also provide an understanding of how a bacterial cell functions in its environment. It will combine themes ranging from macromolecular synthesis of cell structures, metabolism, the genome, environmental effects, and regulation.

4.0 CONTENT:

The topics to be covered are set out below:

- a. Basic Cell Structure and Function; Macromolecular Synthesis of DNA, RNA and Protein;
- b. Structural Assembly;
- c. Bacterial growth; Environmental effects; Enzymes and Energy Production;
- d. Physiological adaptation;
- e. Mutation and adaptation
- f. Respiration and Fermentation.
- g. Gene expression, regulation and control

5.0 RATIONALE FOR CONTENT

The topics covered will be suitable for someone who is considering a career in microbiology. The topics

provide an understanding of the fundamentals and basic principles of microbial cell structure and growth and cellular responses to environmental changes. The topics also cover the depth and range of physiological diversities found in micro-organisms leading to their biotechnological exploitation.

6.0 ORGANISATION AND TEACHING METHODS:

The course will be taught in five modules. There will be a maximum of thirty-six contact hours at the rate of three per week, over a period of thirteen weeks interspersed with revision workshop and seminar sessions.

7.0 RATIONALE FOR TEACHING METHODS

Lecture modules will be used to provide content, context and detailed explanation of the course material. Workshops will be used for student directed learning through problem solving exercises.

8.0 ASSESSMENT:

The assessment will be on a research topic in the form of a written assignment (1000 words, due week 12, 10%), a short seminar presentation (15%) to run from weeks 3 to 12 (up to 15 mins presentation plus 5 mins question time) and student participation during the seminars (5%), 2 compulsory quizzes in weeks 5 & 9 (20%), and a final 1.5 hour end-of-semester exam (50%).

9.0 RATIONALE FOR ASSESSMENT

The assignment topic will be from a list of current topics of relevance and significance to modern microbial biotechnology and physiology and is designed to provide skills in the art of summarising scientific material and in scientific literature searching using a variety of reference materials. The seminar is designed to provide skills in the art of oral communication. Compulsory student attendance is expected during the course of the seminars in which students are expected to participate by asking questions. This will motivate students to critically evaluate the contents of the seminars. The quizzes will encourage students to follow a study schedule and gauge their performance during the semester in readiness for the final exam. The examination will assess the student's knowledge on concepts, theory and applications of the course matter.

10.0 TEXTS AND SUPPORTING MATERIALS:

Principles of Microbiology, R. M. Atlas, 2nd edition, WCB Publishers. Modules notes will be available from the Science Bookshop at the Nathan Campus (Science 2, level -1, Room 1.02A) or from the Co-op Book Shop at the Logan Campus. Web based material can be found at the URL: <http://trishul.sci.gu.edu.au/courses/bbs2710/>

11.0 COURSE EVALUATION FOCUS

By student survey and review by teaching team members.

12.0 ADMINISTRATION:

12.1 The administration of this course conforms to the general practice adopted by the School of Biomolecular and Biomedical Science.

12.2 Pre-requisite/Prior Assumed Requirements

Enrolment in this course is granted on the basis that a grade of P (Pass) or better has been achieved in any Pre-requisite or Prior Assumed requirement in this course as listed under section 1 of this outline. Failure to meet this requirement may result in you having difficulty with the course and not being able to complete it successfully. **Any additional support or special assistance cannot be expected nor requested if the prerequisite and/or prior assumed requirements have not been met.**

Signed: _____
Course Convenor

Date

Signed: _____
Head of School (BBS)

_____ Date

Signed: _____
Chair (Faculty Board)

_____ Date