



BIOL391

Biological Sciences Capstone

S1 External 2015

Dept of Biological Sciences

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General Information

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Unit Convenor

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W19F 139

By appointment.

Credit points

3

Prerequisites

39cp

Corequisites

3cp from BIOL301-BIOL375 or BBE305 or BBE306

Co-badged status

BBE304

Unit description

In this capstone unit students consolidate their learning across a diversity of units within their programs of study and prepare themselves for appropriate transition to the next stage of their careers. This involves active reflection on prior learning, building and articulating a positive self-understanding, exploring opportunities, clarifying goals, acquiring adequate employability and workplace skills, and building linkages with professional communities and industries. A major objective in this course is to get students to think about, and help students assess, their future career path and the skills required to meet their career aspirations. A series of guest speakers will talk about their own career paths and offer advice on future study, career and employment options. The course also covers key topics such as communicating science, the publication and review process, research ethics, and career pathways.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.

Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options where an understanding of biology is essential, valuable or advantageous.

Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.

Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.

Students will gain important experience in working effectively both as an individual and as part of a team, with knowledge of ethical principles.

Assessment Tasks

Name	Weighting	Due
Presentation	5%	7/4
Reflection journal	10%	27/5
Portfolio part I	25%	27/4

Name	Weighting	Due
<u>Interview</u>	5%	8/4
<u>Portfolio part II</u>	15%	1/5
<u>Research and Ethics Proposal</u>	40%	1/6

Presentation

Due: 7/4

Weighting: 5%

3 min presentations on findings from your information interview. You are encouraged to produce 2 slides or so to use as visual aide to illustrate your points.

You are free to source a subject to interview. You may also attend Careers Fair on campus on 10th March (10-3pm) in the Atrium to source a subject.

On successful completion you will be able to:

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.

Reflection journal

Due: 27/5

Weighting: 10%

To be completed throughout the semester.

Reflections (200-250 words) on the experiences of the guest speakers. Identify the career skills and values the speaker described in their talk. How do your skills and values match up with such a career? Four entries required.

On successful completion you will be able to:

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options

where an understanding of biology is essential, valuable or advantageous.

Portfolio part I

Due: **27/4**

Weighting: **25%**

A brief personal career statement (max. 1 page) summarising your reflection on your biological learning/training to date, specific skills and knowledge acquired for the career you are pursuing, your personal traits/strengths, values, interests, general skills, suitable fields of work and work environment, what you identified as potential work choices and any future professional development plan. (10%)

Supply a job ad or job description/reference material of work that you are interested in applying for

CV (max. 2 page) tailored for the work description/job application above. (10%)

Cover letter (max. 1 page) tailored to accompany the CV. (5%),

On successful completion you will be able to:

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options where an understanding of biology is essential, valuable or advantageous.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.

Interview

Due: **8/4**

Weighting: **5%**

Attend a 10min job interview simulation with a panel of three for the position or work you apply for in assignment 2.

On successful completion you will be able to:

- Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options where an understanding of biology is essential, valuable or advantageous.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.

Portfolio part II

Due: 1/5

Weighting: 15%

Individual science communication blog project. You will be given a choice of topical biological issues to discuss in a popular science article (max. 2 pages).

On successful completion you will be able to:

- Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.

Research and Ethics Proposal

Due: 1/6

Weighting: 40%

In a group assessment centre exercise style, you will work in a group to resolve a major biological issue present in society today (1/6).

Your task is to work out a solution as a group (5%). (Half of the 5% mark will be peer-assessed in tutorial 17/5)

Your second (individual) task is to write a short grant proposal explaining how you will tackle your issue and why your solution should be funded. (20%).

Your third (individual) task is to write an ethics proposal for the implementation of your solution (15%)

On successful completion you will be able to:

- Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.
- Students will gain important experience in working effectively both as an individual and as part of a team, with knowledge of ethical principles.

Delivery and Resources

Technology

Unit outline, workshop notes and course notes will be distributed via iLearn. <http://ilearn.mq.edu.au>

iLearn is a web-based computer mediated communication package and can be accessed by most web browsers from inside or outside the University. iLearn and email will be the principle method of communication in this subject.

- You must use iLearn for

- Regularly checking subject announcement- particularly with regard to the pracs and class readings;
- Downloading course materials;
- Downloading some of the reference material;
- Using the discussion board.

If you are having trouble accessing your online unit due to a disability or health condition, please go to the Student Services Website at <http://sss.mq.edu.au/equity/about> for information on how to get assistance. If you are having problems logging on and you cannot log in after ensuring you have entered your username and password correctly, you should contact Student IT Help, phone (02) 9850 4357 (in Sydney) or 1 800 063 191 (outside Sydney).

Lecture and Tutorial times

Lecture (2 h)

Monday **10:00 - 12:00** W5C 320

Tutorial

7/4 9:00 - 16:00 F5A 428

8/4 9:00 - 16:00 F5A 428

16/5 9:00 - 16:00 F5A 428

17/5 9:00 - 16:00 F5A 428

Career Resources

Young, S. P. (1984) Careers in the Biological Sciences: Finding Your Niche. In *The American Biology Teacher*. 46(1), pp. 12-17+64.

Blickley, J. L. et al. (2013) Graduate Student's Guide to Necessary Skills for Nonacademic Conservation Careers. In *Conservation Biology*. 27(1), pp.24-34

Career View publications are available on http://www.victoria.ac.nz/st_services/careers/resource/s/career_publications/career_view/index.aspx

Career View: Genetics and Molecular Biology

Career View: Marine Biology, Ecology and Biodiversity

Career View: Biotechnology

Career View: Biomedical Science

Graduate Careers Australia

<http://www.graduatecareers.com.au/CareerPlanningandResources/careerprofiles/index.htm>

Myfuture

<http://myfuture.edu.au/Explore%20Careers.aspx>

Astor, B. (2005) *What Can You Do with a Major in Biology?* New Jersey: Wiley Publishing.

Bernard, T. (2005) *Bernard's Pharmaceutical & Biotechnology Jobseeker's Guide 2005*. Queensland: Paddington Academic Press.

Advertisements for a range of positions can be found online or in the print media. For example, the *Sydney Morning Herald* publishes *My Career* every Saturday and local newspapers generally have classifieds sections advertising jobs. More high powered or specialized jobs are often advertised in major scientific sources such as *Science* and *Nature*.

Public sector positions

The Australian Public Service - jobs within federal government departments and agencies

<http://www.apsjobs.gov.au/>

NSW Government Jobs - jobs within NSW government departments and agencies

<http://www.jobs.nsw.gov.au/>

Jobs within other state government departments and agencies

Victoria -<http://www.careers.vic.gov.au/>

Queensland -<http://jobs.qld.gov.au/>

Western Australia -<http://www.jobs.wa.gov.au/>

South Australia -<http://www.vacancies.sa.gov.au/asp/public/Home.aspx>

Northern Territory -<http://notes.nt.gov.au/dcis/RMS.nsf/NTGEmploymentHome?OpenForm>

Tasmania -<http://www.jobs.tas.gov.au/>

Private sector positions

Natural Resource Management Jobs -<http://search.emailmedia.com.au/nrmjobs.php>

EnviroJobs - <http://www.envirojobs.com.au/>

SEEK - <http://www.seek.com.au/>

Job Search Australia -<http://jobsearch.gov.au/default.aspx>

How you should assess your skills

We will cover this in detail in lectures. Briefly, one strategy is to consider 'hard' and 'soft' skills.

Hard skills are the specific things you learned to do as an undergraduate. These might include operating equipment, performing analyses, giving presentations or writing reports (see Table 1). More specific examples might include that you learnt to run a PCR, conduct a faunal or plant survey, operate diagnostic equipment of some sort or use GIS (Geographic Information System). Potential employers might be looking for these skills.

Soft skills are also referred to as ‘transferrable skills’, ‘generic skills’ or ‘people skills’, and are also highly valued by employers. You should make it clear that you have these sorts of skills too.

Unit Schedule

Unit Schedule

Week	Topic	Tut/Reading/Assignment
1. 23/2 Intro to course/ thinking about careers Self-assessment, opportunity awareness and decision making	Intro to course-Marianne Thinking about your careers (theory informed career concepts to apply to your own development)-Julie/Serene Reflection, exploring self and opportunities, clarifying goals, making action plans and information interviewing- Julie/Serene	R: Reference materials on biological careers.
1. 2/3 Job search strategies, Presentation skills	How to do a good presentation- Marianne Job search strategies: the big picture- Serene Digital job search: how to make the best of it- Research librarians	T: Use of self-assessment tools, research relevant work opportunities (local or international) and their requirements. Serene and Julie (7/4). (Also, careers fair on 10 th March at the Atrium, MQ).

<p>1. 9/3</p> <p>Extension training</p> <p>Portfolio building and preparing a job application</p> <p>March 10 Careers fair</p>	<p>Training beyond undergraduate (professional courses, postgrad); maintaining & developing skills- Marianne</p> <p>Effective job search strategies, job analysis, CV and cover letter construction, addressing selection criteria, professional portfolio - Serene</p>	<p>T/A1: 3 min presentation on findings from an information interview. You would need to have conducted an information interview and then present your findings (slides due on 12pm mid-day, 6/4 5%) -Marianne + Serene/Julie</p>
<p>1. 16/3</p> <p>Articulating what you have to offer in interviews (to a non-science audience)</p>	<p>Interviewing skills, interview feedback -Serene</p>	
<p>1. 23/3</p> <p>Professional community and industry engagement</p>	<p>Tips, expectations, networking guide- Serene</p> <p>Guest speakers: careers using science</p>	<p>T/A3: Job interviews (5% due 8/4).</p>
<p>1. 30/3</p> <p>Written science communication</p>	<p>Popular vs. original science writing, writing tips, science communication, science blog- Marianne</p> <p>The academic science writing and publication process (editing, reviewing) - Marianne</p>	<p>A4 due: portfolio part I (25% due 29/3)</p> <ul style="list-style-type: none"> • Personal career statement covering reflection of learning, self-analysis, work choice research from all sources (desktop research and information interviewing) • CV • Cover letter
<p>1. 20/4</p> <p>Working ethically</p>	<p>T: Ethics in both human and animal research- Marianne</p> <p>Guest speakers: careers using science</p>	<p>T: Ethics in team work, team development, assessment, project planning (Julie + Serene) and introduction of A5 (16/5)</p>

1. 27/4 Project planning using scientific principles	Experimental design, understanding statistical power, evaluating evidence- Marianne	T: Groups work on final project (16-17/5)
1. 4/5 Careers in biological sciences- professional networking	Science careers workshop and debate C10A level 3 conference rooms	A4: Portfolio part II: Science blog due (25%, due 1/5)
1. 11/5 Managing data, team work and assessment	How to write a grant, what makes a good grant- Marianne Data management- Marianne	T/A5: Group project assessment activity (5%) – 2.5% peer evaluation (17/5)
1. 18/5 Working with people	Working with people- Julie Communicating science to potentially difficult audiences- Marianne	A2 due: Journal reflections on at least 4 guest speakers (250 words each). (due 27/5)
1. 25/5 Learning portfolio expansion	Continuing to build your learning portfolio- Serene	
13. 1/6	General feedback Wrap up	A5 due: Research/ethics proposal due (1/6)

Tutorial Schedule

		Tut/Reading/Assignment
Tues 7/4	9-11am	T: Reflection exercise, use of self-assessment tools, research relevant work opportunities (local or international) and their requirements.
	11am-1pm	T: Sample CVs and resumes critique exercise
	2-4pm	A1 presentation: 3 min presentation on findings from an information interview. You would need to have conducted an information interview and then present your findings (5%)
Wed 8/4	9-11am	T: Interview techniques and speed networking.
	11-1pm	T: Sample CVs and resumes critique exercise.
	2-4pm	A3: Job interviews (5%).
Sat 16/5	9-11am	T: Ethics, project management, team development.
	11:15-1:25pm	T: Project planning and problem solving.
	2-4pm	A5: Groups work on project.
Sun 17/5	9-11am	A5: Groups work on project.
	11am-12+pm	A5: Group project peer and assessor evaluations. Informal writing workshop.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students

should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Assessment tasks

- Presentation
- Reflection journal
- Portfolio part II
- Research and Ethics Proposal

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options where an understanding of biology is essential, valuable or advantageous.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.
- Students will gain important experience in working effectively both as an individual and as part of a team, with knowledge of ethical principles.

Assessment tasks

- Portfolio part I
- Interview
- Research and Ethics Proposal

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Learning outcome

- Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.

Assessment task

- Portfolio part I

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to

critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.

Assessment tasks

- Presentation
- Reflection journal
- Portfolio part II
- Research and Ethics Proposal

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.
- Students will gain important experience in working effectively both as an individual and as part of a team, with knowledge of ethical principles.

Assessment task

- Research and Ethics Proposal

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Students can articulate and present evidence of key learning and strengths gained throughout their program of study for the purpose of adding value to their future profession.
- Students develop practical transition skills including effective job search strategies and job application skills (CV and interviews), and are clear about the diverse career options where an understanding of biology is essential, valuable or advantageous.
- Students are equipped with some of the key workplace skills that help maximise their contribution to their field of work and build positive workplace experience.
- Students will be able to effectively communicate scientific results and arguments to both scientific and lay audiences using a variety of oral and written formats.

Assessment tasks

- Presentation
- Portfolio part I
- Interview
- Portfolio part II
- Research and Ethics Proposal

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcome

- Students will gain important experience in working effectively both as an individual and

as part of a team, with knowledge of ethical principles.

Assessment task

- Research and Ethics Proposal

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcome

- Students will gain important experience in working effectively both as an individual and as part of a team, with knowledge of ethical principles.

Assessment task

- Research and Ethics Proposal