



BIOL349

Biodiversity and Conservation

S2 External 2019

Dept of Biological Sciences

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Disclaimer

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General Information

Unit convenor and teaching staff

Unit Convenor

Jane Williamson

jane.williamson@mq.edu.au

Contact via jane.williamson@mq.edu.au

205b Culloden Road, G10

Technician

Muhammad Masood

muhammad.masood@mq.edu.au

Contact via 9850 8217

FWW 427

Tutor

Louise Tosetto

louise.tosetto@mq.edu.au

Contact via louise.tosetto@mq.edu.au

205b Culloden Road, G18

Tutor

Patrick Burke

patrick-john.burke@students.mq.edu.au

205b Culloden Road, G18

Credit points

3

Prerequisites

(39cp at 100 level or above) including BIOL227 and BIOL235

Corequisites

BIOL313 or BIOL316 or BIOL318 or BIOL334 or BIOL341 or BIOL347 or BIOL362 or BIOL368 or BIOL369 or BIOL372 or BIOL373

Co-badged status

Unit description

Conservation of populations, species and ecosystems are essential in maintaining biodiversity. Any loss or deterioration in the condition of biodiversity can compromise ecological and human wellbeing. This unit covers the major themes of biodiversity and conservation: patterns of biodiversity, principles of conservation biology, human impacts and management principles. Topics include global biodiversity, threatening processes, protected areas, habitat fragmentation, restoration ecology, climate change impacts and management of threatened species. Practical work is conducted in two compulsory intensive sessions; one on campus during a weekend and the other off campus in Sydney for three consecutive days. This unit is beneficial for students interested in conservation and management of marine, freshwater and/or terrestrial ecosystems.

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:

Evaluate the major patterns and services provided by biodiversity globally

Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity

Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques

Understand conservation management plans for practical application using principles of conservation biology

Evaluate the efficacy of new conservation management strategies in a professional context

General Assessment Information

ASSESSMENT DETAILS

Details of assessments will be provided on iLearn and in class.

ASSESSMENT SUBMISSION

Digital copies of all written tasks will be required. Assessments will be submitted through the appropriate Turnitin portal on iLearn.

ACADEMIC HONESTY

Plagiarism is the presentation of thoughts and work of another as one's own.

Examples include:

- Copying thoughts or work of another without appropriate acknowledgment
- Paraphrasing another person's work with very minor changes
- Piecing together sections of the work of others into a new document.

All assessments need to be written in the student's own words. The penalties imposed by the University for plagiarism are serious and may include expulsion from the University. ANY evidence of plagiarism will be dealt with following University policy. Penalties for plagiarism will be imposed for each assessment and clearly defined in marking grades. Further penalties imposed by the Faculty disciplinary committee may range from a loss of all marks and the award of zero depending on the circumstances.

EXTENSIONS, PENALTIES AND DISRUPTION TO STUDIES

The deadlines for assignments are not negotiable. If an assignment is submitted late a penalty of -5% of the mark allocated for the assignment will be deducted per day (i.e. 6 days late = -30% of marks available). Submission must occur within one week (7 days) of the due date or the assignment will not be marked.

If you experience a serious and unavoidable disruption to your studies and require an extension for an assessment please submit a Disruptions to Studies notification via ask.mq.edu.au with supporting documentation, and a Professional Authority Form completed by your healthcare professional. If you anticipate a potentially serious and unavoidable disruption (e.g., upcoming surgery) speak to the unit staff early and apply for an extension before the due date.

UNIT COMPLETION

To pass this unit, students need to achieve an overall minimum grade of 50% and attend the compulsory sessions on 24-25th August and 16-18th September.

SUPPLEMENTARY EXAMS

If you receive special consideration for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. You can check the supplementary examination information page on FSE101 in iLearn (bit.ly/FSESupp) for dates, and approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Seminar</u>	10%	No	25th August
<u>Blog</u>	12%	No	25th August / 3rd September
<u>Species Assessment</u>	20%	No	14th September
<u>Group Research Project</u>	25%	No	19th October
<u>Final Exam</u>	33%	No	Examination Period

Seminar

Due: **25th August**

Weighting: **10%**

You will prepare and give an 8-minute talk that summarises and critically appraises a scientific journal article chosen from the recent (last 5 years) conservation biology literature. The content of the article can be terrestrial, freshwater or marine. No props other than the PowerPoint presentation are to be used. You will present your talk to unit participants in a compulsory conference-style day on 25th August 2019. Specifics of the marking scheme and guidelines will be available in iLearn. A pdf of your final PowerPoint presentation must be uploaded to iLearn by 9 am on 23rd August.

On successful completion you will be able to:

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Evaluate the efficacy of new conservation management strategies in a professional context

Blog

Due: **25th August / 3rd September**

Weighting: **12%**

You will prepare a blog (word limit 800 words, excluding title, graphs, figures, tables, references)

on the article you presented for your oral seminar. The article will be written in the style of an online publication in *The Conversation*. Blogs will be posted live on iLearn and you will have the opportunity to read and comment on other people's blogs via this website. Specifics of the marking scheme and guidelines will be available via iLearn.

Formal assessment for this task occurs in two sections:

- (1) Your uploaded blog, worth 8% (uploaded by 9 am on 25th August)
- (2) Constructive comments on two other uploaded blogs, worth 4% (portal closes at 9 am on 3rd September)

On successful completion you will be able to:

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Evaluate the efficacy of new conservation management strategies in a professional context

Species Assessment

Due: **14th September**

Weighting: **20%**

You will write a document (word limit 2,000 words excluding abstract, acknowledgements and references) on the status of an animal or plant species occurring in NSW. The species can be terrestrial, freshwater or marine but cannot be closely related to the species or habitat that you gave your seminar on. From the literature (published and grey) you will identify the history of the species in NSW, threats challenging the species' persistence, and nominate a level of threat to the species in NSW following the IUCN Red List of Categories and Criteria. Try to pick species that are not extremely common or the task will be more difficult for you due to the mountain of literature you will need to sift through. Specifics of the marking scheme and guidelines can be found in iLearn. Your document must be submitted by 9 am on 14th September. Failure to attend the Taronga Zoo excursion on 24th August will result in a deduction of your final grades for this assessment.

On successful completion you will be able to:

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques

- Evaluate the efficacy of new conservation management strategies in a professional context

Group Research Project

Due: **19th October**

Weighting: **25%**

As a small group, you will research an allocated project on an aspect of conservation and/or biodiversity associated with Balls Head Reserve and the Coal Loader Centre for Sustainability in Sydney. Your research will be communicated orally (as a group) and in the form of an electronic scientific poster (by yourself). Your poster will describe your project and report your results, with emphasis on how your research advances existing literature on the topic. Specifics of the marking scheme and guidelines can be found in iLearn.

Formal assessment for this task occurs in two sections:

- (1) A group talk at the end of the Balls Head field trip, worth 5%
- (2) An A0-sized scientific poster, worth 20%

Your scientific poster is an individual assessment that is due by 9 am on 19th October.

On successful completion you will be able to:

- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Final Exam

Due: **Examination Period**

Weighting: **33%**

You will sit a final examination during the examination period at the end of the unit. The exam will be 2 hours plus 10 minutes reading time, and notes are not permitted. The format of the exam will include multiple choice, short answer and small essays. All aspects of the unit are examinable. Emphasis will be placed on the integration of material from lectures and practicals rather than rote learning of facts.

Please consult the University Handbook to determine the commencement and finishing dates of the compulsory examination. More information on the exam will be given towards the end of the unit.

On successful completion you will be able to:

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
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Delivery and Resources

LECTURES

Thursdays, 3-5 pm at 8 Sir Christopher Ondaatje, 115 Tutorial Room [08SCO 115]

If you are an internal (day) student you are strongly advised to attend the lectures.

** Lectures start in Week 2 **

PRACTICALS

24th August – Taronga Zoo, outside the main gate. 9.15 am to 2 pm

25th August – Seminar series in 14 Eastern Road, 130 & 150 Science Labs. 9 am to 5 pm

16-18th September – Coal Loader Centre of Sustainability, Waverton. 9 am to 5 pm (times flexible depending on your research project)

Students must attend all practicals for the entire days.

UNIT WEBSITE

The unit web page can be accessed via the student portal (log in at <https://ilearn.mq.edu.au/login/MQ/>). Within iLearn you will find unit information, resource and assessment material, ECHO (formerly iLectures), announcements, forum and dialogue facilities, as well as links to Turnitin for submitting assessment tasks. You are encouraged to use the discussion & email facilities for communication among staff and students. Please also check the unit website regularly for announcements and additional resource material.

RECOMMENDED TEXTS

There is no single text that covers the whole unit. Several general texts are recommended and

are in the library and/or for sale at the Co-op Bookshop. Some are available free online:

Primack RB. 2010. *Essentials of Conservation Biology* 6th edition. Sinauer Associates.

Groom MJ, Meffe GK, Carroll CK. 2005. *Principles of Conservation Biology*, 3rd edition, Sinauer Associates.

Sodhi N and Ehrlich PR. (Eds.). 2010. *Conservation Biology for All*. Oxford University Press. (Available online at:<http://www.mongabay.com/conservation-biology-for-all.html>).

Lindenmayer D & Burgman M. 2005. *Practical Conservation Biology*. CSIRO.

Attiwill P. & Wilson B. (2006). *Ecology. An Australian Perspective*. 2nd edition, Oxford University Press.

Stow, A, Maclean, N., Holwell, G.I (Eds.). 2015. *Austral Ark : The State of Wildlife in Australia and New Zealand*. Cambridge University Press.

TECHNOLOGY USED AND REQUIRED

Students are expected to access all unit material through the iLearn unit website. Basic multimedia software (eg. Windows Media Player, Quicktime) will be needed to listen to recorded lectures. Students will be required to use internet resources for sourcing information and to use appropriate software, particularly Excel, for data analysis. Knowledge of data storage and analysis equivalent to that taught in BIOL235 is assumed as these skills are not taught in this unit.

Students will need access to a portable computer for practical sessions. These are not supplied in this unit.

Unit Schedule

This timetable is subject to change.

Sem wk	Date	Speaker	Lecture title
1	1-Aug	No lecture	
1	1-Aug	No lecture	
2	8-Aug	Jane Williamson	Introduction to BIOL349 and PACE
2	8-Aug	Jane Williamson	The value of biodiversity
3	15-Aug	Jane Williamson	Patterns of biodiversity
3	15-Aug	Jane Williamson	Species assessment and the IUCN: an assignment insight
4	22-Aug	Jaco Le Roux	Plant invasiveness: how and why?
4	22-Aug	Michelle Leishman	Vulnerability to extinction

5	29-Aug	Jane Williamson	Human population and habitat loss
5	29-Aug	Jane Williamson	Overexploitation and disease
6	5-Sep	Jane Williamson	Extinction
6	5-Sep	Jane Williamson	Restoration ecology
7	12-Sep	Dick Frankham	Introduction to conservation genetics
7	12-Sep	Dick Frankham	Genetic management of wild populations
8	3-Oct	Dick Frankham	Captive breeding and re-introduction
8	3-Oct	Simon Clulow	Protecting the world's vanishing frogs: conservation approaches for 21st century threats
9	10-Oct	Sally Potter	Conservation genetics approaches for species management
9	10-Oct	Linda Beaumont	Species distribution modelling
10	17-Oct	Alessandro Ossola	Urban biodiversity
10	17-Oct	Lesley Hughes	Climate change and conservation
11	24-Oct	John Alroy	Using local-scale data to quantify global patterns of biodiversity and extinction
11	24-Oct	Bob Creese	Conservation in the marine realm
12	31-Oct	Maryrose Antico	Managing threatened aquatic species: a NSW perspective
12	31-Oct	Andrew Claridge	Integrating conservation science and policy
13	7-Nov	Jane Williamson	Technical innovations in conservation science
13	7-Nov	Jane Williamson	Wrap up

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4*

December 2017 and replaces the Disruption to Studies Policy.)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway](https://students.mq.edu.au/support/study/student-policy-gateway) (<https://students.mq.edu.au/support/study/student-policy-gateway>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@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

If you are a Global MBA student contact globalmba.support@mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/

[offices_and_units/information_technology/help/](#).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources 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:

Learning outcomes

- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Blog
- Group Research Project
- Final Exam

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

- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional

context

Assessment tasks

- Blog
- Group Research Project

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

- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Species Assessment

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

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology

- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Blog
- Species Assessment
- Group Research Project
- Final Exam

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

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Species Assessment
- Group Research Project
- Final Exam

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

- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Species Assessment
- Group Research Project
- Final Exam

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

- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Blog
- Final Exam

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 outcomes

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques
- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Species Assessment
- Group Research Project

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 outcomes

- Evaluate the major patterns and services provided by biodiversity globally
- Identify key threatening processes that lead to the loss of biodiversity, including those experienced through the PACE activity
- Critically evaluate and synthesise diverse information sources on a current, real-world conservation issue, and communicate that understanding using a variety of techniques

- Understand conservation management plans for practical application using principles of conservation biology
- Evaluate the efficacy of new conservation management strategies in a professional context

Assessment tasks

- Seminar
- Blog
- Species Assessment
- Group Research Project

Changes from Previous Offering

In response to student comments from previous years, the Group Research Project (GRP) replaced the previous Plan of Management (PoM) in 2018. Assessment submission times were also altered to accommodate submission dates from other concurrent units.

In 2019 all efforts were made to ensure minimal clashes with other units for practicals and lectures. As students in 2018 indicated that back to back lectures would increase class attendance, this unit now offers lectures in a block from 3-5pm on Thursdays.

The 2018 participation assessment has now been incorporated into the other assessment tasks.

Finally, results from the Group Research Project are now presented as an individual assessment in poster format rather than as a research manuscript.

BIOL349 as a PACE unit

BIOL349 is a PACE unit within the Department of Biological Sciences. This unit provides an opportunity for students to engage directly with the community by working on 'real-world' problems alongside industry. Students visit Taronga Zoo and discuss conservation efforts and threatened species planning with zoo researchers. Students also visit Balls Head Reserve and the Coal Loader Centre for Sustainability where they collect data that will be utilised by the local community and industry as part of a longitudinal study.

Biodiversity and conservation researchers and industry partners give guest lectures within the unit thus giving students direct exposure to transitional links to the workplace. Partners benefit by interacting with enthusiastic discipline-specific students on the cusp of entering the workforce, and through exposure to new advances in the field of biodiversity and conservation. BIOL349 gives back to the community through the sharing of scientific data and viewpoints. More information on the role of PACE in BIOL349 will be given in the first lecture.