

GEG6232 / GEG6232P NATURE-BASED CLIMATE SOLUTIONS

Module Handbook 2022-23



Photo: LR Belyea, 2011

Module convenor: Prof. Lisa Belyea (L.Belyea@qmul.ac.uk)

Fieldwork demonstrator (Week 5 only): Nan Wu

TEACHING AND LEARNING PROFILE

Credit value: 15 credits

Pre-requisites: None

Assessment: Group report 20 %

Briefing document 80 %

Learning activities

Lectures/workshops: 18 hours

Non-residential fieldwork: 8 hours

Coursework surgeries: 2 hours

Digital learning activities: 20 to 40 hours

Content description

To what extent can climate change be mitigated by improved stewardship of terrestrial and aquatic ecosystems? In this module, we examine how conservation, restoration and improved management of ecosystems can increase carbon storage and/or avoid greenhouse gas emissions. We evaluate a range of 'natural climate solutions' or 'nature-based climate solutions' (NbCS) for their feasibility, cost-effectiveness, environmental co-benefits and climate mitigation potential. You will take an active approach to learning through participation in lectures, small-group discussions and a non-residential field trip.

Module aims

The aims of the module are

- (1) To provide a critical overview of nature-based approaches to increasing ecosystem carbon storage and avoiding greenhouse gas emissions, and
- (2) To allow students to evaluate "natural climate solutions" across a range of ecosystem types.

Learning outcomes

Academic content: You will

- Take a systems approach to understanding the links between ecosystems and global climate
- Gain a critically informed understanding of the role of "natural climate solutions" in mitigating climate change
- Apply scientific knowledge to achieving policy commitments on greenhouse gas emissions

Disciplinary skills: You will be able to

- Synthesise and analyse information on a variety of "natural climate solutions"
- Consider "natural climate solutions" from a range of interdisciplinary perspectives
- Critically evaluate "natural climate solutions" for their feasibility, cost-effectiveness and potential for climate change mitigation

Attributes: You will gain

- Ability to communicate complex information about "natural climate solutions" clearly and effectively in a specified format

- Flexibility and adaptability in generating solutions to complex global problems
- Awareness of responsibility as a local, national and international citizen with a global perspective on climate change mitigation

WHAT TO EXPECT

This module will be delivered using a blended learning approach. You will engage with weekly timetabled 'live' sessions as well as with digital learning activities between these timetabled sessions. Throughout the module you will have opportunities for regular, weekly interaction with the module lecturer and for small group learning. Below is an outline of what you can expect:

Digital learning activities: Your week-to-week learning on the module will be supported by a range of digital learning activities or tasks. These tasks will vary from week to week and are intended to prepare you for weekly lectures and workshops as well as to extend your understanding. You should allow two to four hours per week to complete these tasks and any associated reading. Keep track of your progress by using the 'activity completion' feature on QM+.

Lectures: The weekly 1-hour lecture will be delivered on-campus. Each lecture is likely to include a mix of instruction and interactive or collaborative activities.

Workshops: The weekly 1-hour workshop is not a lecture: it is an interactive session during which you will be expected to participate. You should prepare for each workshop in advance by completing the assigned learning activities and participating in the lecture.

Non-residential fieldwork: In Week 5, you will undertake non-residential fieldwork in east London.

Full details of each week can be found in the **module content** tab. You must ensure that you check this regularly and follow the guidance provided. You should also regularly check your email for module announcements.

SCHEDULE

Week	Lecture topic	Workshop topic
1	Introduction to the module The climate challenge and nature-based climate solutions <i>Coursework assignment (Briefing document)</i>	What are nature-based climate solutions (NbCS)?
2	Policies and actions for climate change mitigation	How do we define 'net zero'?
3	Digging deeper: the science of NbCS	How effective are NbCS as a climate action?
4	Co-benefits of NbCS	<i>Fieldwork briefing and coursework assignment (group report)</i>

5	Fieldwork preparation	<i>Fieldwork on Thursday 27 October; no workshop</i>
6	Money, money, money: Funding nature-based solutions	How can NbCS be funded?
7	<i>Reading week; No lecture or workshop</i>	
8	Forests and trees	Debating the global potential for forest restoration
9	Agro-ecosystems <i>Coursework due (group report)</i>	We need to talk about nitrogen...
10	Peatlands and organic soils	A biogeochemical compromise?
11	Blue carbon	Crossing boundaries
12	<i>Coursework clinics and formative feedback (Briefing document)</i>	<i>No workshop</i>

Attendance

Attendance at lectures, workshops and fieldwork is compulsory. It is your responsibility to catch up on work missed by reviewing the learning resources posted on QMPlus.

Module-related messages and notices

You will receive messages about the module via the QMPlus module page and your QMUL email, so please keep your eye on both.

How to get help

You can get help in a number of ways:

1. If you have a question about the module, the best option is to ask during a lecture or workshop.
2. If you need an answer before the next timetabled session, post your question in the 'Q & A Forum' on the module page. Note that your question will have your name on it and will be visible to everyone else in the module. So spend some time thinking about your question and wording it appropriately. If you see someone else's question and you know the answer or would like to comment on it, feel free to reply on the forum. I will check the Q & A Forum periodically and will aim to reply to queries within five working days.
3. If there is an academic matter that you would like to discuss in private, then speak to me during one of my [Advice and Feedback Hours](#). Please note that module convenors in the School of Geography cannot give extensions on coursework - refer to the School's guidance on extenuating circumstances.
4. If you would like to discuss an academic matter in private but cannot make either of my Advice and Feedback Hours, then send me an email. **Email should be used only under exceptional circumstances.** I check email periodically and will aim to reply to

genuine and necessary queries within five working days. **Please follow professional email etiquette** - see, for example, [this blog](#).

5. I do not use the 'messaging drawer' on QM+. If you send a message via this route, it will remain unanswered.

Please note that I work reduced hours. I do not respond to emails outside my normal work days (Mondays to Thursdays).

Module evaluation

You will be given the opportunity to comment on the module and offer feedback through the formal module evaluation questionnaire at the end of the module. However, if you have comments you are encouraged to talk with the module convenor. Constructive comments are always welcome!

ASSESSMENT AND FEEDBACK

The module will be assessed through two items of coursework:

Group report 20 % (2000 words, excluding tables, captions and references)

You will work collaboratively with other students to carry out and report on carbon storage of urban trees in Tower Hamlets. Refer to the coursework guidance on QM+ for further details (Module Content > Assessment 2022/23 > Group report assessment guidance).

Submission by 2 pm on **23 November 2022**; feedback to be returned by 14 December 2022 (online).

Briefing document 80 % (4 A4 pages, equivalent to 2000 words, excluding tables, captions and endnotes)

You will work independently to produce a briefing document for elected government ministers for a country of your choice. Refer to the coursework guidance on QM+ for further details (Module Content > Assessment 2022/23 > Briefing document assessment guidance).

Submission by 2 pm on **05 January 2023**; feedback to be returned by 26 January 2023 (online).

Coursework Submission Guidelines: Assignments must be submitted electronically via QM+ and must include a completed Coursework Submission Template, provided in the 'Submit Assignments' box on the QM+ page for the module. The file format will be specified for each assignment when it is set. Full coursework submission guidelines may be found on the Undergraduate Information Zone page on QM+.

Extenuating Circumstances: Details of Penalties for Late Submission and information on how to make an application to the School's Extenuating Circumstances Panel may be found on the Undergraduate Information Zone page on QM+. Non-completion of coursework elements may result in failure of the whole module.

Formative and Summative Feedback: Formative oral feedback will be provided continuously, and you are encouraged to ask questions during lectures and workshops. You may also post questions on the QM+ forum or speak to staff in person during advice and feedback hours. Summative feedback (including a provisional mark) will normally be returned within 15 marking days of submission.

RECOMMENDED READING

Please note that the following are recommended general reading: topic-specific reading lists will be provided each week.

Recommended:

Dinerstein, E., et al. (2019) A global deal for nature. *Science Advances* 5: eaaw2869 (doi: 10.1126/sciadv.aaw2869)

Griscom, B.W., et al. (2017) Natural climate solutions. *PNAS* 114, 11645–11650 (doi: 10.1073/pnas.1710465114)

Smith P., et al. (2014) Agriculture, Forestry and Other Land Use (AFOLU). In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.