

Course Information

Course Title	Course Code Number	Credit Value
Natural Forest Management in the Tropics	FODE 014	3 credits
Prerequisites		
TBD		
Corequisites		
None.		

Contacts

Course Instructor(s)	Contact Details	Office Location	Office Hours
TBD	TBD	TBD	TBD
Other Instructional Staff			
TBD			

Course Description

The diversity of issues that natural forest managers in the tropics need to consider is rapidly expanding, but strong ecological and silvicultural roots are needed to keep it grounded. This course represents an attempt to strengthen these roots in such a way that those entrusted in the management of natural forest, particularly in the tropics, can more effectively ply their trade. If properly managed, tropical forests can contribute a great deal towards improving social welfare while at the same time protecting biodiversity and maintaining the ecosystem services upon which we all depend. The more we understand about how tropical forests function, the more likely it will be that our management methods will help us to approach the elusive goal of sustainability.

Target Audience

The target audience for this course is tropical foresters in the broadest sense of this designation. It is for those who want to learn more about the impacts (intended and otherwise) of silvicultural treatments and other interventions.

Delivery Format

This course is designed to be a fully online MOOC type course with an option to issue a graduate-level course completion certificate. Course content such as readings and fundamental concepts will be offered as open educational resources for Asian-Pacific region. The entire or 'parts of' the course are welcome to be repurposed in other current and future courses and programs to support flipped, blended, and online learning. It will follow a format similar to mainstream MOOCs on EdX or Coursera, which typically include presentations, mini videos, automatically graded tests, and moderated online discussions on weekly basis.

In the case of self-directed learning, students will learn through moderated online discussions facilitated by student volunteers or TAs and through self-review activities found at the end of each learning topic. In the case of certificate learning, students will learn through scheduled instructor-facilitated sessions and discussions and will actively engage with instructors, TAs, and their peers to complete all graded assignments to earn the certificate. Course completion certificates will be issued after students successfully pass the **course**. Students can access all course materials, presentations, videos, assignments, and tutorials online through UBC Canvas System.

Learning Outcomes

In this course students should strengthen their understanding of management options for natural forests as well as of the ecological, silvicultural, and economic consequences of management interventions. The course's twelve modules progress from consideration of the goals of natural forest management through the ecological conditions that determine the appropriateness of different sorts of silvicultural interventions. Given the importance of timber stand management, the modules deal with pre-harvest activities, harvesting, and the impacts of harvesting. The last two modules consider approaches to securing regeneration of commercial species and increasing yields. Throughout the course, due attention is paid to the financial costs of different activities as well as the unavoidable economic, social, and ecological tradeoffs involved in any sort of management.

By the end of the course each student should be able to:

- Explain the various objectives of natural forest management in the tropics.
- Clarify the tradeoffs and synergies among these objectives.
- Develop a general plan for the management of a natural forest that includes pre-harvest activities, harvesting, and post-harvest monitoring.
- Select from a range of silvicultural treatments designed to improve the stocking and growth of commercial species.
- Predict the major social, ecological, and economic impediments to sustainable management of a forest based on fundamental considerations about that forest.

Learning Materials

There are no textbooks or other materials that students will need to purchase. Each of the 13 modules is supported with a summary of about 2500 words as well as supplementary readings that are available on the course CANVAS site. Each module is also supported by a short video presentation focused on some of the more difficult material in the module. For modules for which the assignments are complicated, video explanations will be provided.

Please see the modules for a complete list of required and optional readings.

Learning Approach & Activities

To the extent possible, students will be engaged in active learning based on the background readings provided in each module along with supportive videos and other materials. Learning will be enhanced by exercises in which students apply what they learned and relate their insights via discussion platforms.

Each student will pick a forest on which to focus and for which they will carry out various assignments. This forest can be one in which they already work, plan to work, or can imagine working. The assembled assignments will constitute the rudiments of a natural forest management plan.

Course Topics

The course topics would build from the ecological (and legal) basis of natural forest management in the tropics, through harvesting and harvest impact assessments, to silvicultural treatments designed to increase stocking and growth of commercial species. They are organized into 13 modules. Each module typically consists of Introduction & Outcomes, Required & Optional Readings, Fundamental Concepts, Online Quiz, Online Discussions (for certificate learning), Topic Summary, Self Review (for self-learning), and a Graded Assignment (for certificate learning).

Module 0: Course Orientation

Course outline/syllabus

Course schedule

Course requirements

Assignment details

Module 1: Stage Setting

Topic 1: Course Philosophy, Approach, and General Expectations

Topic 2: Roles Of Tropical Forest Managers and other Relevant Decision Drivers

Module 2: Values Of Natural Forests: Harvested Products

Topic 1: Wood and Wood Products

Topic 2: Bark and Bark Products

Topic 3: Other Non-Timber Forest Products

Module 3: Values Of Natural Forests: Ecosystem Services And Biodiversity

Topic 1: Biodiversity

Topic 2: Ecosystem Services I: Hydrology and Local Climate Moderation

Topic 3: Ecosystem Services: Carbon Sequestration and Climate Change Mitigation

Module 4: Tropical Forest Plant Growth Forms Related To Natural Forest Management

Topic 1: Trees

Topic 2: Shrubs

Topic 3: Vines and Lianas (i.e., Climbers)

Topic 4: Epiphytes and Hemiepiphytes

Topic 5: Palms

Topic 6: Grasses and other Graminoids

Topic 7: Forbs (=Broadleaved Herbs)

Module 5: Plant And Forest Ecosystem Water, Carbon, And Nutrient Relations

Topic 1: Water Relations

Topic 2: Light and Photosynthesis

Topic 3: Nutrient Relations

Topic 4: Fire

Topic 5: Plant Reproduction

Module 6: Forest Types As Related To Their Management

Topic 1: Primary, Secondary, and Degraded Forests

Topic 2: Lowland, Hill, and Montane Forests

Topic 3: Freshwater Swamp Forests

Topic 4: Mangrove Forests

Topic 4: Forests on Extremely Nutrient-Poor Soils

Module 7: Pre-Harvest Management Activities

Topic 1: Relevant National, State, and Local Regulations

Topic 2: Site Assessment

Topic 3: Topographic Maps

Topic 4: Harvesting as a Silvicultural Treatment

Topic 5: Harvest Plans

Module 8: Harvest And Transport Of Forest Products

Topic 1: Tree Felling Tools and Techniques

Topic 2: Timber Yarding

Topic 3: Harvesting Schedules

Topic 4: Haul Roads and Log Landings

Topic 5: Forest Product Protection

Module 9: Ecological Effects Of Timber Harvesting

Topic 1: Collateral Damage to Trees and Their Responses

Topic 2: Changes in Above-Ground Forest Structure

Topic 3: Effects on Soils

Topic 4: Hydrological Impacts

Topic 4: Biodiversity Impacts

Topic 5: Carbon Impacts

Module 10: Promoting Natural Regeneration Of Commercial Species

Topic 1: Protecting Future Crop Trees (FCTs)

Topic 2: Sources of Regeneration

Topic 3: Resprouting of Damaged Plants

Topic 4: Regeneration Requirements

Topic 5: Natural Regeneration-Promoting Silvicultural Treatments

Module 11: Artificial Treatments To Increase Stocking Of Commercial Species

Topic 1: Planting Materials

Topic 2: Site Preparation and Planting

Topic 3: Enrichment Planting

Topic 4: Environmental And Economic Concerns About Plantation Forestry

Module 12: Treatments To Increase Growth, Yields, And Forest Product Quality

Topic 1: Weed Control

Topic 2: Thinning

Topic 3: Pruning

Topic 4: Measuring And Reporting Growth Rates

Topic 5: Environmental Impacts of Stand Improvement Treatments

Module 13: Forest Landscape Planning

Topic 1: Spatial Considerations in Forest Landscape Planning

Topic 2: Tradeoffs to Consider in Forest Landscape Plans

Course Schedule

For self-directed learning students, you can complete the topics and modules at your own pace. The speed at which you progress through the course will depend on a number of factors, including how well you can understand English, how much you already know about the topics.

For certificate learning students, you are expected to follow the schedule below to participate in all instructor-facilitated course activities and complete all course assignments by specified due dates.

Note that all deadlines, dates and times are given in Pacific Standard Time (PST). Contact your instructors to discussion any adjustment needed to accommodate your time zone.

Start Week	Module	Core Concepts/Topics	Learning Activities	Assignment Dues
Week 1 Day 1-7	Course Orientation	<ul style="list-style-type: none"> Course outline/syllabus Course schedule Course requirements Assignment details 	<ul style="list-style-type: none"> Review course introduction and overview materials. Familiarize yourself with course platform and tools. Post self-introduction on class discussion board. Ask at least one question about the course on the class discussion board. Review roles of tropical forest managers and decision drivers Graded assignments 	<ul style="list-style-type: none"> -Self introduction of 200 words due by 11:59 PM on day 5 (PST) of the week. -At least one question posted on discussion board by 11:59 PM on day 5.
Week 2 Day 1-7	Module 1: Stage Setting	<ul style="list-style-type: none"> Course Philosophy, Approach, and General Expectations Roles of Tropical Forest Managers and Decision Drivers 	<ul style="list-style-type: none"> Readings Fundamental concepts Online discussions Self-review Graded assignments 	<ul style="list-style-type: none"> -Forest description of 200 words due by 11:59 PM on day 3 of the week -Satellite image of your forest due by 11:59 PM on day 7 -Citations of at least 5 published papers about your forest by 11:59 PM on day 7
Week 3 Day 1-7	Module 2: Values of Natural Forests: Harvested Products	<ul style="list-style-type: none"> Wood and Wood Products Bark and Bark Products Other Non-Timber Forest Products 	<ul style="list-style-type: none"> Readings Fundamental concepts Online quiz Online discussions Self-review Graded assignments 	<ul style="list-style-type: none"> -Description of 3 most important commercial products from your forest, due by 11:59 PM on day 2 of the week -Descriptions of 3 NTFPs harvested in your forest, due by 11:59 PM on day 3

				<ul style="list-style-type: none"> • -Hydrology assignment, due by 11:59 PM on day 4 • -Tradeoffs assignment due by 11:59 PM on day 15-Tradeoff assignment due by 11:59 PM on day 5
Week 4 Day 1-7	Module 3: Biodiversity and Ecosystem Service Values of Natural Forest	<ul style="list-style-type: none"> • Biodiversity • Ecosystem Services 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Self-review • Graded assignment 	<ul style="list-style-type: none"> • Tradeoff assignment due by 11:59 PM on day 7 of the week
Week 5 Day 1-7	Module 4: Tropical Forest Plant Growth Forms Related To Natural Forest Management	<ul style="list-style-type: none"> • Trees • Shrubs • Vines, Lianas, Or Climbers • Epiphytes And Hemiepiphytes • Palms • Grasses And Other Graminoids • Forbs (=Broadleaved Herbs) 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignments 	<ul style="list-style-type: none"> • -Life form assignment due by 11:59 PM on day 5 of the week • -Weed problem assignment due by 11:59 PM on day 7
Week 6 Day 1-7	Module 5: Plant And Forest Ecosystem Water, Carbon, And Nutrient Relations	<ul style="list-style-type: none"> • Water Relations • Light And Photosynthesis • Nutrient Relations • Fire • Plant Reproduction 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • -Water potential assignment due by 11:59 PM on day 5 of the week • -Canopy cover assignment due by 11:59 PM on day 6 • -Fire assignment due by 11:59 PM on day 6 • -Regeneration failure assignment due by 11:59 PM on day 7
Week 7 Day 1-7	Module 6: Forest Types As Related To Their Management	<ul style="list-style-type: none"> • Topic 1: Primary, Secondary, And Degraded Forests 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review 	<ul style="list-style-type: none"> • -Forest type assignment due by 11:59 PM on day 3 of the week

		<ul style="list-style-type: none"> • Topic 2: Lowland, Hill, And Montane Forests • Topic 3: Freshwater Swamp Forests • Topic 4: Mangrove Forests • Topic 4: Forests On Extremely Nutrient-Poor Soils 	<ul style="list-style-type: none"> • Graded assignments 	<ul style="list-style-type: none"> • -Size-class frequency distribution of measured trees due by 11:59 PM on day 5
Week 8 Day 1-7	Module 7: Pre-Harvest Management Activities	<ul style="list-style-type: none"> • Relevant National, State, And Local Regulations • Topographic Maps • Harvesting As A Silvicultural Treatment • Harvest Plans 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • -Forest management regulation assignment due by 11:59 PM on day 3 of the week • -NPV assignment due by 11:59 PM on day 7
Week 9 Day 1-7	Module 8: Harvest And Transport Of Forest Products	<ul style="list-style-type: none"> • Tree Felling Tools And Techniques • Timber Yarding • Harvesting Schedules • Haul Roads And Log Landings • Forest Product Protection 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • -Timber harvesting equipment description due by 11:59 PM on day 3 of the week • -Harvest plan assignment due by 11:59 PM on day 7
Week 10 Day 1-7	Module 9: Ecological Effects Of Timber Harvesting	<ul style="list-style-type: none"> • Collateral Damage To Trees And Their Responses • Changes In Above-Ground Forest Structure • Effects On Soils And Belowground • Hydrological Impacts • Biodiversity Impacts 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • Above-ground biomass estimation for 100 trees from week 7 due by 11:59 PM on day 3 of the week • Infiltration rate assignment due by 11:59 PM on day 5 • Reduced-impact logging and carbon reading assignment, due by 11:59 PM on day 7
Week 11 Day 1-7	Module 10: Promoting Natural Regeneration of Commercial Species	<ul style="list-style-type: none"> • <i>Protecting Future Crop Trees (FCTs)</i> • <i>Sources of Regeneration</i> 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review 	<ul style="list-style-type: none"> • -Silvicultural treatment assignment due by 11:59 PM on day 7

		<ul style="list-style-type: none"> • <i>Resprouting Of Damaged Plants</i> • <i>Regeneration Requirements</i> • Natural Regeneration-Promoting Silvicultural Treatments 	<ul style="list-style-type: none"> • Graded assignment 	
12 Day 1-7	Module 11: Artificial Treatments To Increase Stocking Of Commercial Species	<ul style="list-style-type: none"> • Planting Materials • Site Preparation And Planting • Enrichment Planting • Environmental And Economic Concerns About Plantation Forestry 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignments 	<ul style="list-style-type: none"> • -Nursery assignment due by 11:59 PM on day 3 of the week • -Plantation assignment due by 11:59 PM on day 5
Week 13 Day 1-7	Module 12: Treatments To Increase Growth, Yields, And Forest Product Quality	<ul style="list-style-type: none"> • Weed Control • Thinning • Pruning • Measuring And Reporting Growth Rates • Environmental Impacts Of Stand Improvement Treatments 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • Sustainable timber yield assignment due by 11:59 PM on day 5 of the week
Week 14 Day 1-7	Module 13: Forest Landscape Planning	<ul style="list-style-type: none"> --Spatial Considerations in Forest Landscape Planning --Tradeoffs to Consider in Forest Landscape Plans 	<ul style="list-style-type: none"> • Readings • Fundamental concepts • Online quiz • Online discussions • Self-review • Graded assignment 	<ul style="list-style-type: none"> • -Sustainable forest management at landscape level assignment due by 11:59 PM on day 5 of the week
Week 15 Day 1-7	Course Wrap-up		<ul style="list-style-type: none"> • Final Examination 	<ul style="list-style-type: none"> • -Due by 11:59 PM on day 7 of the week

Course Certification

This is a course with an option to obtain certification for a 3-credit graduate-level course. Students would need to decide whether to pursue a certificate by end of Week 2 of the course. The number of certificate learning students for each offering of the course would be capped at 30. Assessments to student certification include the following components. Each component must be passed to successfully complete the course to get the course certificate. The passing grade is 60%.

Components	Points/Marks	Weight
Participation (Self Intro, Q&A, surveys)	5 each	5%
Online Quizzes (13)	5 each x 13 = 65	15%
Online Discussions (13)	100 each x 13 = 1300	30%
Assignments (13)	100 each x 13 = 1300	30%
Online Exam	100	20%

Final letter grades will be given based on the following grading schema:

Letter Grade	Range
A+	90% - 100%
A	85% - 89%
A-	80% - 84%
B+	76% - 79%
B	72% - 75%
B-	68% - 71%
C+	64% - 67%
C	60% - 63%
F (Fail)	0% - 59%

Late Assignment Policy

In general, submitting assignments after the specified completion date, without prior approval, is not acceptable. In the event that a student cannot submit an assignment on the specified completion date, late work may be accepted but **10% will be deducted from the grade per day**. In extreme cases of personal misfortune this policy can be extended ONLY by special arrangement with the instructor.

Participation Expectations

Students are expected to contribute something substantial to all on-line discussions.

Netiquette Expectations

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors.

SECURITY

Remember that your password is the only thing protecting you from pranks or more serious harm. Don't share your password with anyone and change it if you think someone else might know it.

GENERAL GUIDELINES

When communicating online, you should always:

- Treat your instructor and peers with respect, even in email or in any other online communication
- Always use your professors' proper title (Professor)
- Use correct spelling and grammar and avoid slang texting abbreviations such as "u" instead of "you"
- Use standard fonts such as Times New Roman and use a size 12 or 14 pt. font
- Be careful with personal information (both yours and other's)
- Use a descriptive subject line
- Sign your message with your name and return e-mail address

MESSAGE BOARD NETIQUETTE AND GUIDELINES

When posting on the Discussion Board in your online class, you should:

- Make posts that are on topic and within the scope of the course material
- Take your posts seriously and review and edit your posts before sending
- Be as brief as possible while still making a thorough comment
- Always give proper credit when referencing or quoting another source
- Don't repeat someone else's post without adding something of your own to it
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point
- Always be respectful of others' opinions even when they differ from your own
- When you disagree with someone, you should express your differing opinion in a respectful, non-critical way, do not make personal or insulting remarks and be open-minded

(Adapted from https://go.osuit.edu/center/teaching_learning/content/netiquette-guidelines-online-courses)

Academic Integrity

UBC is an academic community in which commitment to the principles of truth and academic honesty is essential. The Code of Academic Integrity prohibits students from committing the following acts of academic dishonesty:

1. Cheating: intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

2. Fabrication: intentional and unauthorized falsification or invention of any information or citation in any academic exercise.
3. Facilitating academic dishonesty: intentionally or knowingly helping or attempting to help another violate any provision of the Academic Code.
4. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

ANY PLAGIARISM will result in a mark of zero for the assignment/exam. As a student, you are expected to submit original work and give credit to other people's ideas and writing. Plagiarism includes copying other people's ideas or writing without citing the source. If a quotation is used, it must be identified as a quotation and correctly cited. **Plagiarism is considered a very serious issue and can affect your career.**

Please make sure you know UBC's policies on plagiarism and read tips for avoiding it (see <http://help.library.ubc.ca/planning-your-research/academic-integrity-plagiarism/>).

For additional guidance on what plagiarism is and how to avoid it, please see:

UBC Calendar: <http://www.calendar.ubc.ca/Vancouver/index.cfm?tree=3,54,111,959>

UBC Learning Commons, Avoiding Plagiarism: <http://learningcommons.ubc.ca/resource-guides/avoiding-plagiarism/>

Other Course Policies

Learning Analytics

Learning analytics includes the collection and analysis of data about learners to improve teaching and learning. This course will be using the following learning technologies: Canvas, etc. Many of these tools capture data about your activity and provide information that can be used to improve the quality of teaching and learning. In this course, I plan to use analytics data to:

- View overall class progress
- Track your progress in order to provide you with personalized feedback
- Review statistics on course content being accessed to support improvements in the course
- Track participation in discussion forums
- Assess your participation in the course

Copyright

All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the Course Instructor(s) or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline.