Orientation to M.Sc and Ph.D Fisheries Science programs

Brett Favaro

September 19, 2019

Agenda

- What is our grad program and its relationship to the School of Graduate Studies?
  - What is the Academic Advisory Committee and what do they do?
  - What does the Graduate Officer/Academic Director do?
- How to recruit students (targeted advertising vs. recruit from the pool)
  - SGS Baseline $
- How the courses work, what major things happen in them, and how that knowledge can help you shape expectations of the student (and how to leverage the courses to benefit their research program)
- Program expectations and key milestones
- How comprehensive exams work
- How to graduate (M.Sc and Ph.D)

1. Program basics
2. Courses
3. Recruitment and Mentorship Resources
4. Program milestones
5. Comprehensive exams, final examinations, and defenses

1. Program basics

The programs

M.Sc Fisheries Science (Fisheries Science and Technology)

M.Sc Fisheries Science (Stock Assessment)

Ph.D Fisheries Science

Program documents
https://mifisheriesscience.github.io/programdocs/

Memorial University
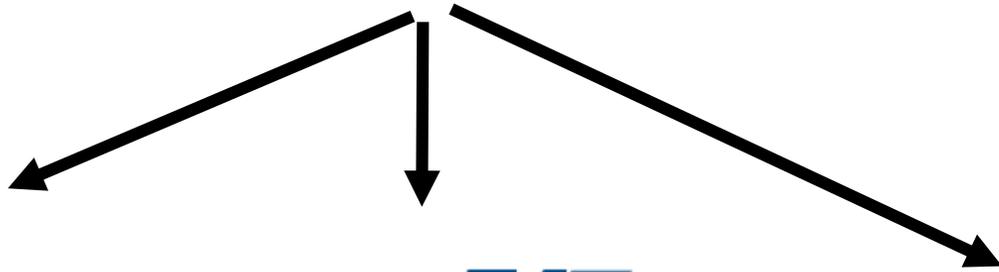
Environmental Science
Cognitive and Behavioural Ecology
Science and Technology Studies
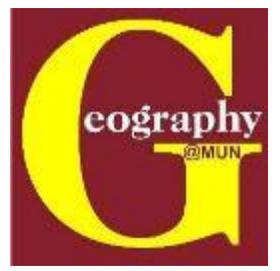
Marine Institute

Department of Ocean Sciences

Marine Institute
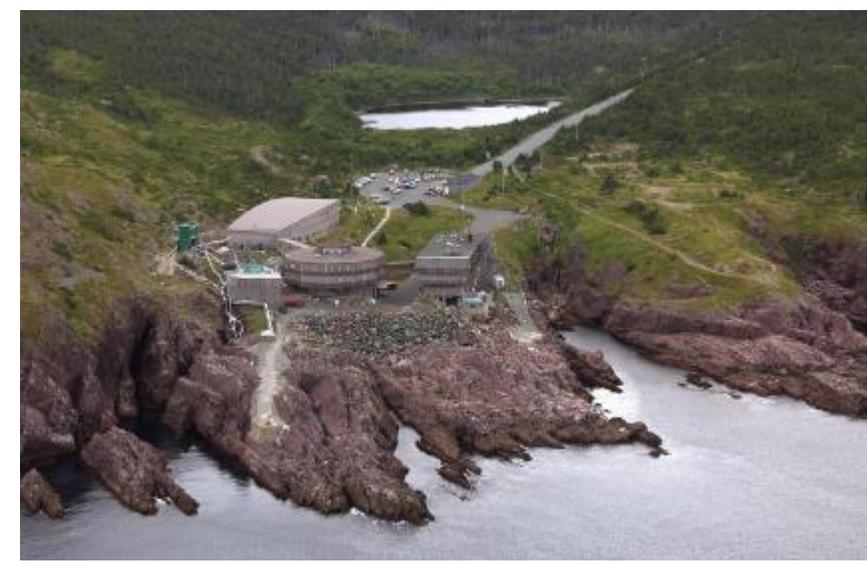
School of Fisheries
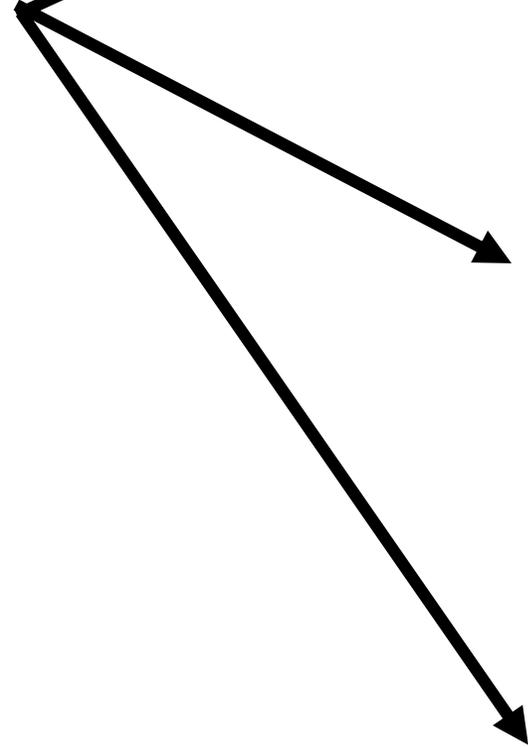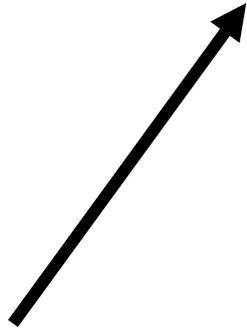
Centre for Sustainable Aquatic Resources

Centre for Fisheries Ecosystems Research

Centre for Aquaculture and Seafood Development

All graduate students are enrolled at the School of Graduate Studies

Primary support staff:

Me: Academic Director/Graduate Officer

Dianne Hunt-Hall Graduate Secretary

https://www.mun.ca/sgs/current/

Graduate Officer

- Oversee program management
  - Admissions
  - Program requirements
  - Baseline funding
- Keep the Calendar up to date as we change policy
- Provide **review** and sign-off for all forms that go to SGS
- Work with Academic Advisory Committee on an ongoing basis to review program requirements

Me: Academic Director/Graduate Officer

Academic Advisory Committee

Chair: Me

Noel Cadigan
Deepika Dave
Arnault Le Bris
Paul Regular (external)
~~Craig Purchase~~

Graduate secretary (Dianne Hunt-Hall)
is a non-voting member

Process student applications, decide whether to accept, conditionally accept, or reject

Determine which students will receive SGS baseline funding

Meet once per year to provide a general review of the program and identify opportunities for improvement

Provide ongoing review of policies, guidelines, and procedures

What differentiates our program from others?

- **Courses**
- Pool of baseline funding
- Comprehensive exam method (Ph.D only)

I take no position on whether Marine Institute faculty should enroll students in our programs for administrative reasons. That's above my pay grade.

2. Courses

M.Sc Fisheries Science (Fisheries Science and Technology)

https://mifisheriesscience.github.io/courses/

Fall:

Winter:
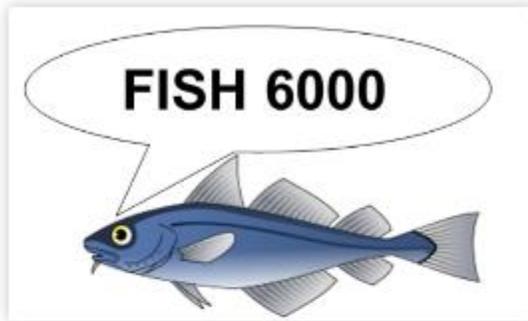
Science Communcation for Fisheries
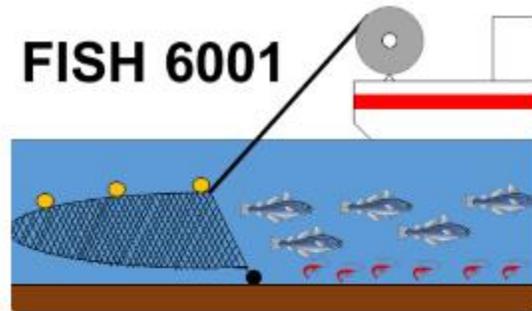
Course documents for **FISH 6000**.

Enter Course

Ecology, Management, and Practice of North Atlantic Fisheries

Course documents for **FISH 6001**.

Enter Course

Data Collection, Management, and Display

Course documents for **FISH 6002**.
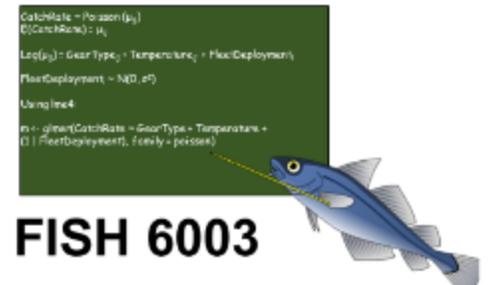
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Statistics and Study Design for Fisheries Science

Course documents for **FISH 6003**

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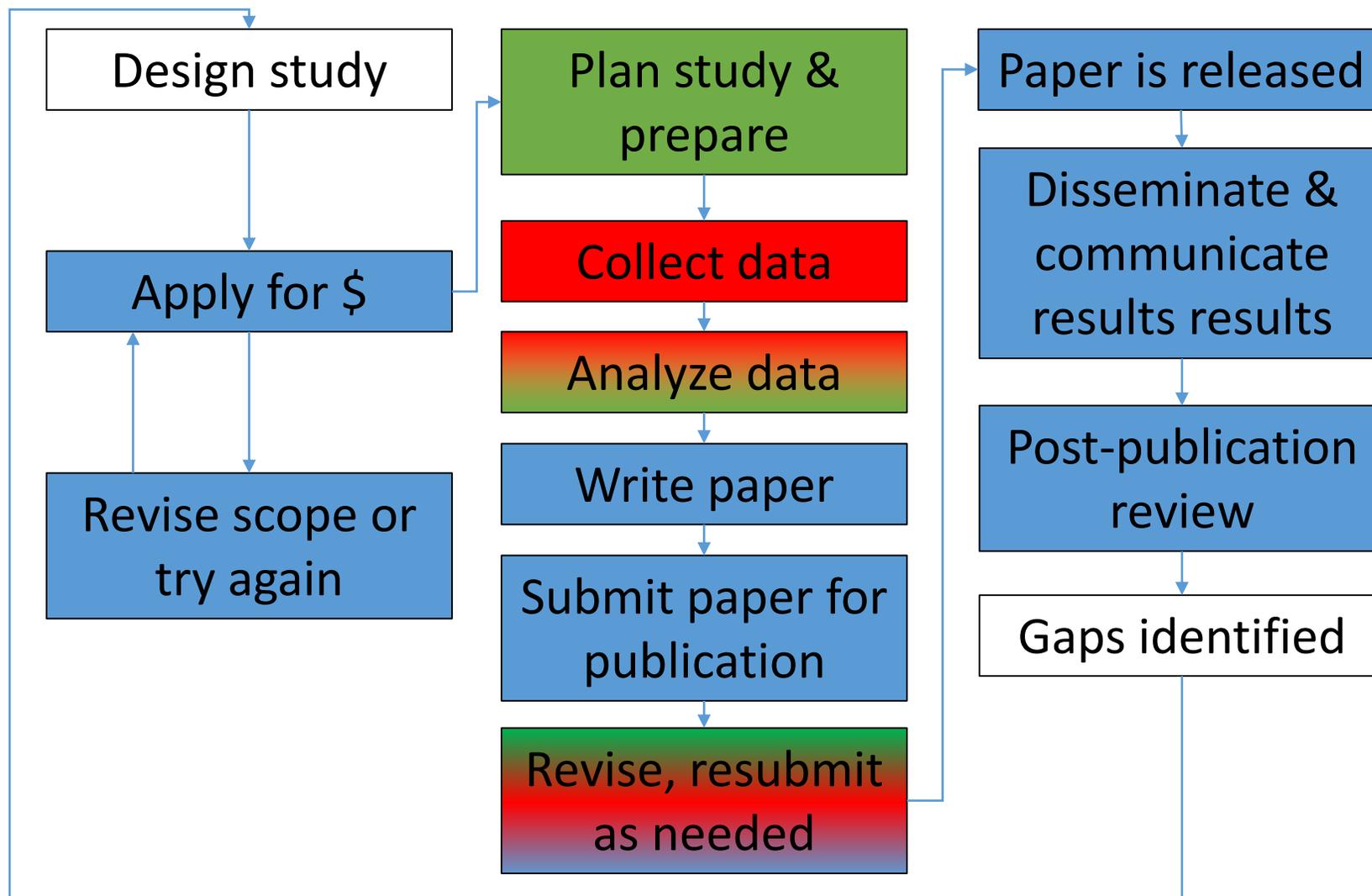
Everything in blue is mostly communication (FISH 6000)
Everything in red is mostly data skills (FISH 6002)
Everything in green is largely statistics (FISH 6003)

FISH 6000
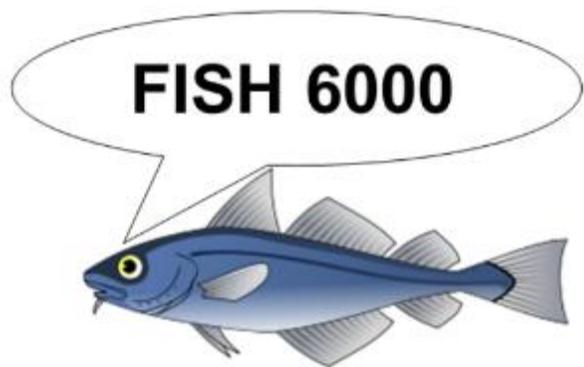
Science Communcation for Fisheries

Key projects
- Write, and submit, a proposal for funding
- Also propose research in the form of:
  - 3 MT (with recorded video)
  - Poster
  - Newspaper article
  - Radio introduction

- Orientation to the scientific enterprise
- What are journals and how do they work?
- Course starts as "inside the ivory tower" and progresses to "outside the ivory tower"
- Some sub-topics:
  - Email-writing
  - Conference registration and attendance
  - Negotiating conflict
  - Determining authorship
  - Goal-setting
  - Writing habits

FISH 6002

Data Collection,
Management, and
Display

Key projects

- Bring data to the class (thesis, or from a database or published paper)

- MANIPULATE it, and DISPLAY it in a transparent, reproducible way using R

- Also: Create a data management plan

- Take students from no knowledge of R, to being able to perform basic tasks
  - How to collect data in the field or from databases and save it
  - Bringing data into R for analysis
  - Work with R projects to archive it and produce competent metadata
  - Create effective graphics

- Advanced topics: Interactive plots, maps, animations

- Sets students up for…

FISH 6003
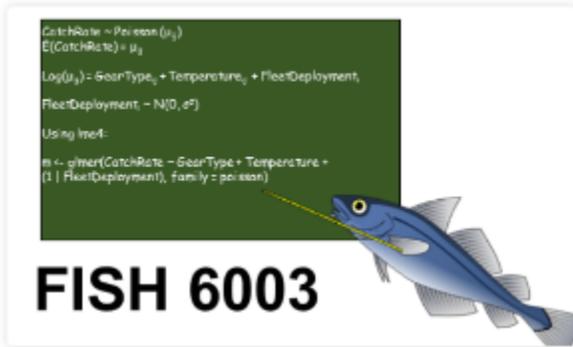
Statistics and Study Design for Fisheries Science

Key projects

- Do a transparent, fully commented GLMM using data students bring to the class

- Include description of all assumptions and decisions made during analysis

- Go from undergrad-level stats to being able to execute generalized linear mixed models in R

- Learn what to write in the paper, how to structure the model

- Learn to design studies and interpret imperfect data

- Focus is **application** at the expense of studying the underlying mathematics (differentiation from Biology's stats course)

- Note: I entirely focus on linear models because…

Common statistical tests are linear models

Last updated: 28 June, 2019. Also check out the *Python version*!

	Common name	Built-in function in R	Equivalent linear model in R	Exact?	The linear model in words	Icon
Simple regression: lm(y ~ 1 + x)	**y is independent of x** P: One-sample t-test N: Wilcoxon signed-rank	t.test(y) wilcox.test(y)	lm(y ~ 1) lm(signed_rank(y) ~ 1)	✓ for N >14	One number (intercept, i.e., the mean) predicts **y**. - (Same, but it predicts the *signed rank* of **y**.)	
	P: Paired-sample t-test N: Wilcoxon matched pairs	t.test(y_1, y_2, paired=TRUE) wilcox.test(y_1, y_2, paired=TRUE)	lm(y_2 - y_1 ~ 1) lm(signed_rank(y_2 - y_1) ~ 1)	✓ for N >14	One intercept predicts the pairwise y_2-y_1 differences. - (Same, but it predicts the *signed rank* of y_2-y_1.)	
	y ~ continuous x P: Pearson correlation N: Spearman correlation	cor.test(x, y. method='Pearson') cor.test(x, y, method='Spearman')	lm(y ~ 1 + x) lm(rank(y) ~ 1 + rank(x))	✓ for N >10	One intercept plus **x** multiplied by a number (slope) predicts **y**. - (Same, but with *ranked* **x** and **y**)	
	y ~ discrete x P: Two-sample t-test P: Welch's t-test N: Mann-Whitney U	t.test(y_1, y_2, var.equal=TRUE) t.test(y_1, y_2, var.equal=FALSE) wilcox.test(y_1, y_2)	lm(y ~ 1 + G_2)^A gls(y ~ 1 + G_2, weights=…^{B})^A lm(signed_rank(y) ~ 1 + G_2)^A	✓ ✓ for N >11	An intercept for **group 1** (plus a difference if **group 2**) predicts **y**. - (Same, but with one variance *per group* instead of one common.) - (Same, but it predicts the *signed rank* of **y**.)	
Multiple regression: lm(y ~ 1 + x₁ + x₂ +…)	P: One-way ANOVA N: Kruskal-Wallis	aov(y ~ group) kruskal.test(y ~ group)	lm(y ~ 1 + G_2 + G_3 +…+ G_N)^A lm(rank(y) ~ 1 + G_2 + G_3 +…+ G_N)^A	✓ for N >11	An intercept for **group 1** (plus a difference if group ≠ 1) predicts **y**. - (Same, but it predicts the *rank* of **y**.)	
	P: One-way ANCOVA	aov(y ~ group + x)	lm(y ~ 1 + G_2 + G_3 +…+ G_N + x)^A	✓	- (Same, but plus a slope on **x**.) Note: this is discrete AND continuous. ANCOVAs are ANOVAs with a continuous x.	
	P: Two-way ANOVA	aov(y ~ group * sex)	lm(y ~ 1 + G_2 + G_3 +…+ G_N + S_2 + S_3 +…+ S_K + G_2*S_2 + G_3*S_3 + … + G_N*S_K)	✓	Interaction term: changing **sex** changes the **y ~ group** parameters. Note: $G_{2 to N}$ is an *indicator (0 or 1)* for each non-intercept levels of the **group** variable. Similarly for $S_{2 to K}$ for sex. The first line (with G_i) is main effect of group, the second (with S_i) for sex and the third is the **group × sex** interaction. For two levels (e.g. male/female), line 2 would just be "S_2" and line 3 would be S_2 multiplied with each G_i.	[Coming]
	Counts ~ discrete x N: Chi-square test	chisq.test(groupXsex_table)	**Equivalent log-linear model** glm(y ~ 1 + G_2 + G_3 + … + G_N + S_2 + S_3+ … + S_K + G_2*S_2 + G_3*S_3 +…+ G_N*S_K, family=…)^A	✓	Interaction term: (Same as Two-way ANOVA.) Note: Run glm using the following arguments: glm(model, family=poisson()). As linear-model, the Chi-square test is log(y_i) = log(N) + log($α_i$) + log($β_i$) + log($α_iβ_i$) where $α_i$ and $β_i$ are proportions. See more info in *the accompanying notebook*.	Same as Two-way ANOVA
	N: Goodness of fit	chisq.test(y)	glm(y ~ 1 + G_2 + G_3 +…+ G_N, family=…)^A	✓	(Same as One-way ANOVA and see Chi-Square note.)	1W-ANOVA

List of common parametric (P) non-parametric (N) tests and equivalent linear models. The notation y ~ 1 + x is R shorthand for y = 1·b + a·x which most of us learned in school. Models in similar colors are highly similar, but really, notice how similar they *all* are across colors! For non-parametric models, the linear models are reasonable approximations for non-small sample sizes (see "Exact" column and click links to see simulations). Other less accurate approximations exist, e.g., Wilcoxon for the sign test and Goodness-of-fit for the binomial test. The signed rank function is signed_rank = function(x) sign(x) * rank(abs(x)). The variables G_i and S_i are *"dummy coded" indicator variables* (either 0 or 1) exploiting the fact that when Δx = 1 between categories the difference equals the slope. Subscripts (e.g., G_2 or y_1) indicate different columns in data. lm requires long-format data for all non-continuous models. All of this is exposed in greater detail and worked examples at https://lindeloev.github.io/tests-as-linear.

^{A} See the note to the two-way ANOVA for explanation of the notation.

^{B} Same model, but with one variance per group: gls(value ~ 1 + G_2, weights = varIdent(form = ~1|group), method="ML").

Jonas Kristoffer Lindeløv
https://lindeloev.net
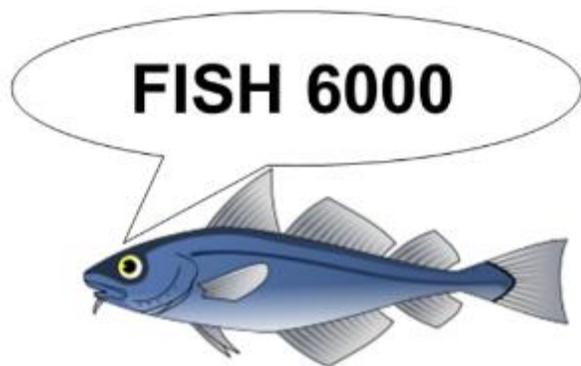
FISH 6000

Science Communcation for Fisheries

FISH 6002

Data Collection, Management, and Display

$$CatchRate \sim Poisson(\mu_i)$$
$$E(CatchRate) = \mu_i$$
$$Log(\mu_i) = GearType_i + Temperature_i + FleetDeployment_i$$
$$FleetDeployment \sim N(0, \sigma^2)$$
Using lme4:
m <- glmer(CatchRate ~ GearType + Temperature +
(1 | FleetDeployment), family = poisson)

FISH 6003
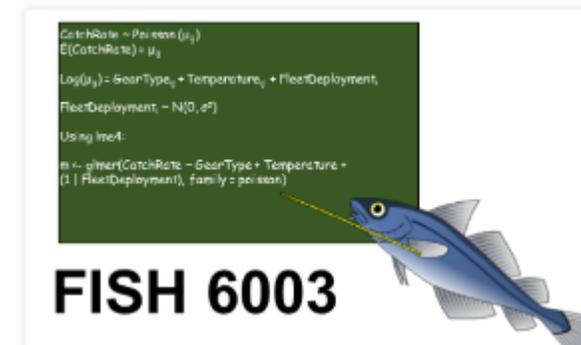
Statistics and Study Design for Fisheries Science

Students will have **written a proposal and submitted it for money**, have built a **talk and a poster** which can form the basis for future conference presentations. They will have worked across multiple media.

They will have developed the basic programming and data skills necessary to conduct research. They will have conducted a statistical model and will have the vocabulary and background necessary to defend their models.

Key point: **There is no busywork in these classes, and the products are designed to integrate with their research program**. Consider how your student's research workflow could benefit from this.

FISH 6001

Ecology, Management, and Practice of North Atlantic Fisheries

Course Schedule

Note while this course is *organized* by Dr. Brett Favaro it is delivered in two-week modules by other researchers, as outlined below.
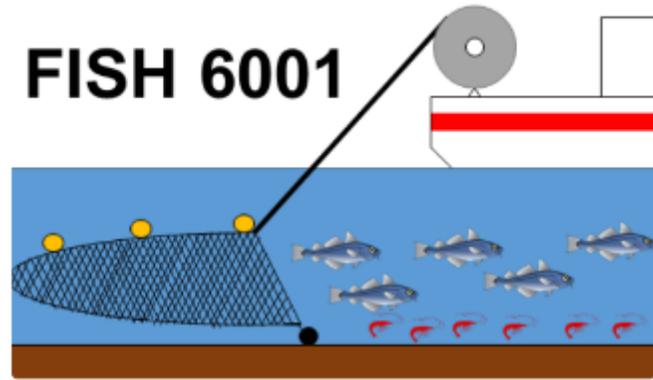
Date	Instructor	Topic
Sept 10, 11, 17, 18	Dr. Paul Winger	Fish harvesting technology
Sept 24, 25, Oct 1,2	Dr. Scott Grant	Fisheries management
Oct 8, 9, **Thurs** Oct 17	Dr. Arnault Le Bris	Population dynamics
Oct 22, 23, 29, 30	Dr. Jonathan Fisher	The Northwest Atlantic ecosystem
Nov 5, 6, 12, 13	Dr. Deepika Dave	Post-harvest
Nov 19, 20, 26, 27	Dr. Sherrylynn Rowe	Fisheries assessment
Tues, Dec 3, in SOF Seminar Room	Final Presentations	
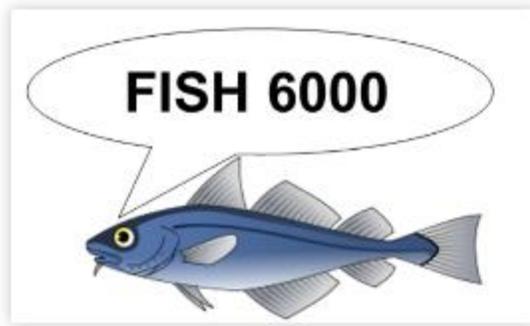
FISH 6000

Science Communcation for Fisheries

Course documents for **FISH 6000**.

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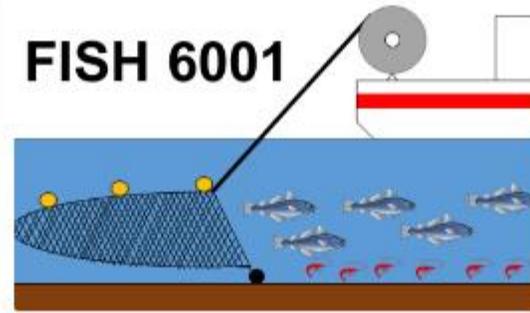
FISH 6001

Ecology, Management, and Practice of North Atlantic Fisheries

Course documents for **FISH 6001**.

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FISH 6002

Data Collection, Management, and Display

Course documents for **FISH 6002**.
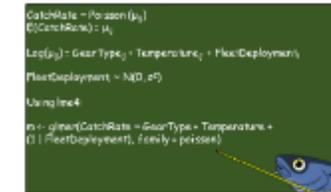
Enter Course

FISH 6003

Statistics and Study Design for Fisheries Science

Course documents for **FISH 6003**.

Enter Course

Also: Introduced to the MI/MUN support systems:
- Library
- ICT
- FGSA
- Grants office

M.Sc Fisheries Science (Stock Assessment)

FISH 6000

Science Communcation for Fisheries

Course documents for **FISH 6000**.

Enter Course

FISH 6001

Ecology, Management, and Practice of North Atlantic Fisheries

Course documents for **FISH 6001**.

Enter Course

Management and Display

Course documents for **FISH 6002**.

Enter Course

Science
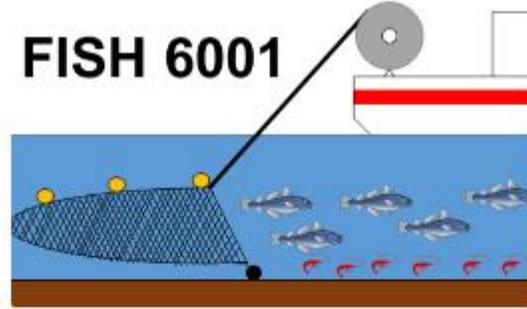
Course documents for **FISH 6003**

Enter Course

Instead:

Fall: 6004 (Overview of Statistical Stock Assessment)

Winter: 6005 (Advanced Statistical Stock Assessment)

Ph.D Fisheries Science

FISH 6000

Science Communcation for Fisheries

Course documents for **FISH 6000**.

[Enter Course]

FISH 6001

Ecology, Management, and Practice of North Atlantic Fisheries

Course documents for **FISH 6001**.

[Enter Course]

FISH 6002

Data Collection, Management, and Display

Course documents for **FISH 6002**.

[Enter Course]

FISH 6003

Statistics and Study Design for Fisheries Science

Course documents for **FISH 6003**

[Enter Course]

Fall: 6004 (Overview of Statistical Stock Assessment)
Winter: 6005 (Advanced Statistical Stock Assessment)

*Specific program determined by student need. If a student **is exceptional** they may be exempted from some of these classes*

Putting courses in perspective

- Year = 52 weeks.
  Subtract 6 for holidays = 46 weeks
- Assume 35 productive hours/week
- 35 * 46 = 1,610 business-hours per year.
- M.Sc = two years → 3,220 h
- Ph.D = four years → 6,440 h

One course = 36 instructional hours. Assume an additional 36 hours of out-of-class work (72 hours)

72 * 4 courses = 288 hours.

These are 9 % of an M.Sc, 4.5% of a Ph.D. and are done within first two semesters.
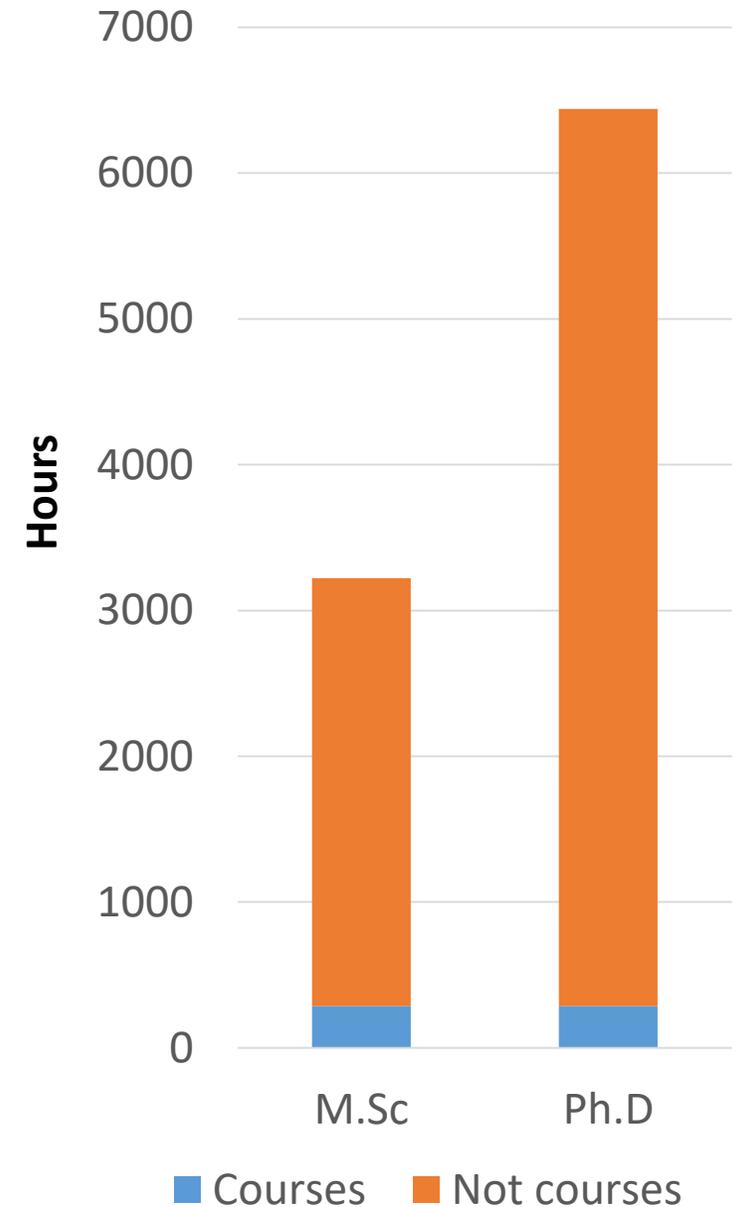
Secondary objective of courses is **community-building** – called for by the student body. Also, I am teaching people to be professional researchers as much as I am teaching them skills.

Online offerings do not accomplish that.
Missing class does not accomplish that.

I include many in-class exercises which include peer-review and group work. **Please do not schedule your students to miss class.**

3. Recruitment and Mentorship Resources

Procedure:

1. Go find a student you're interested in
2. Interview them
3. If you like them, have them apply to the grad program
4. Complete the Letter of Commitment form and send it to **myself, Arlene, and Dianne** so we know to watch for the application
5. Arlene will forward the application to the Academic Advisory Committee for review, when complete
6. AAC will review and either accept, ask questions, or reject

School of Fisheries Graduate Supervisor Letter of Commitment

Fisheries and Marine Institute Research-Based Graduate Programs

Version 1.0

Last updated: 4 Feb, 2019

Instructions

This form is to be completed by a prospective supervisor of an applicant to any of the Marine Institute research-based graduate programs. The purpose of this form is to confirm to the academic advisory committee that, if the committee admits the applicant, that a PI will commit to supervising their M.Sc or Ph.D, and will assume all the responsibilities entailed by such a commitment.

Please complete this form as soon as you have made an offer to supervise a graduate student, and send to the graduate secretary.

Student Name (First, last): _____

Program:

☐ M.Sc Fisheries Science (Fisheries Science and Technology)

☐ M.Sc Fisheries Science (Stock Assessment)

☐ Ph.D Fisheries Science

☐ I am requesting SGS Baseline support for this student	☐ I am **not** requesting SGS Baseline support for this student

I agree to supervise or co-supervise the above student if that student is admitted into the program.

Please both **print** and **sign** your name: Signature:

Name of Faculty Member: _____   _____

Name of Co-supervisor (If applicable): _____   _____

Date: _____

Alternate Procedure:

1. Wait until an application deadline (Sept 15, Jan 15, or May 15)
2. Look at all the students who applied to OnBase and who aren't connected to a supervisor
3. Reach out to them and interview
4. If you like them, have them apply to the grad program
5. Complete the Letter of Commitment form and send it to **myself, Arlene, and Dianne**
6. Arlene will forward the application to the Academic Advisory Committee for review, when complete
7. AAC will review and either accept, ask questions, or reject

It costs students money and time to apply. Please respect that.

Minimal mentorship team

M.Sc

Ph.D

Supervisor

Supervisor

Committee member with Ph.D

Committee member with Ph.D

Committee member with Ph.D
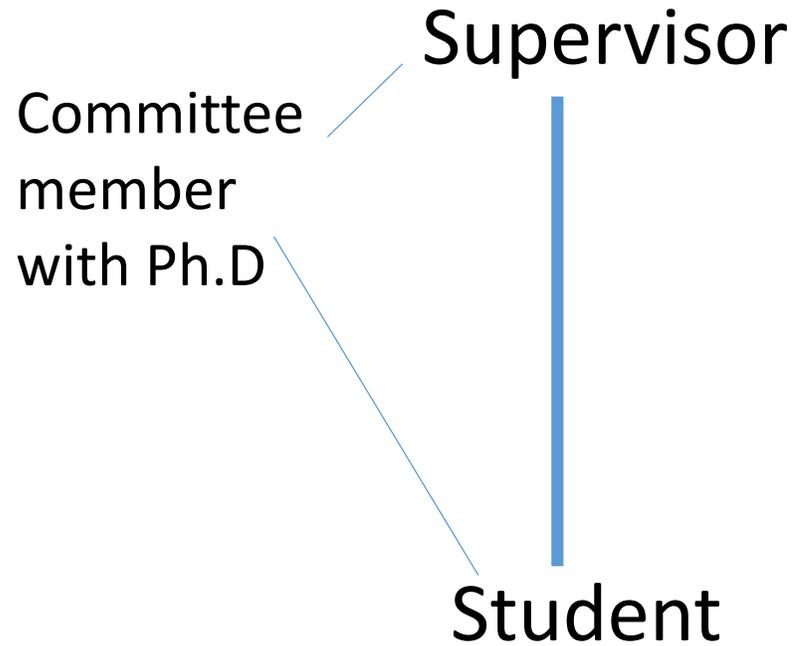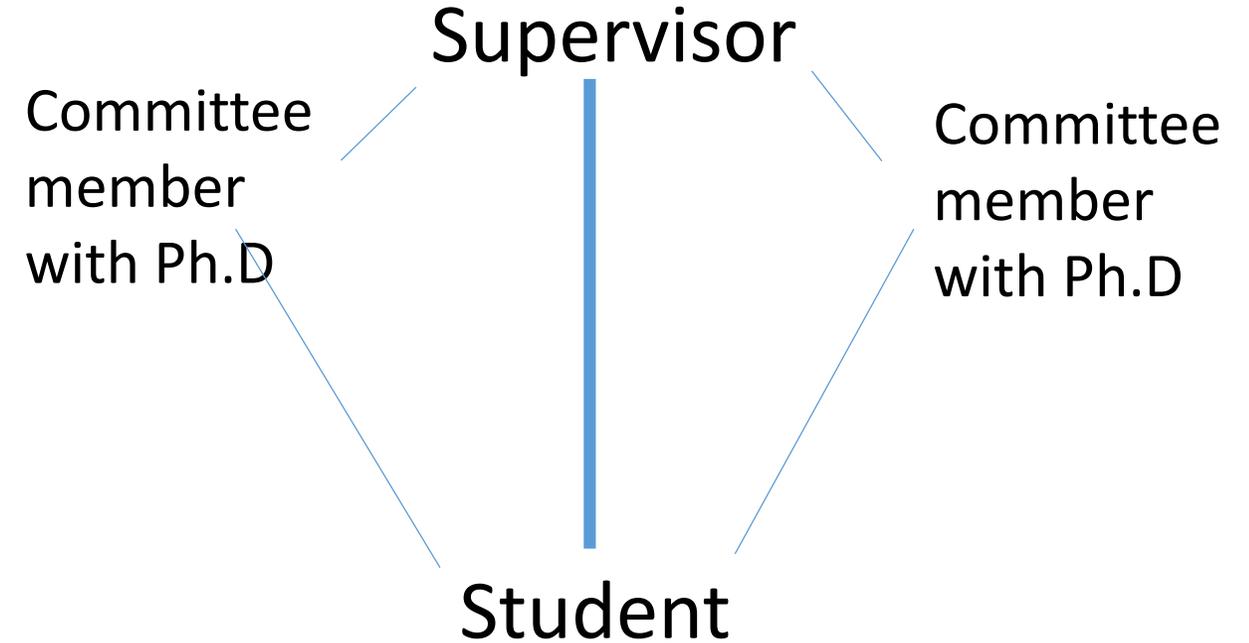
Student

Student

Also allowable:
- More committee members
- Co-supervisors

Please establish these committees within first three months

How do I find students?

- Recruiting students to your lab is part of your job
- Consider issuing a posting and disseminate via:
  - Twitter
  - Facebook
  - Email lists
  - Physical postings

PhD Position Available: Quantifying Incidental Seabird Bycatch in the Eastern Canadian Arctic

While incidental bycatch is recognized as a global threat to seabird populations, little work has been done to date to assess and quantify this conservation issue in the eastern Canadian Arctic. This research project will work with seabird and fisheries managers to describe and quantify the current levels of bycatch on a seabird species known to be highly susceptible to bycatch, as well as identify factors associated with high levels of seabird bycatch in the region.

The mission of this project is to conduct research that will improve our understanding of incidental seabird bycatch in the Greenland Halibut fisheries in Nunavut and Atlantic Canada to inform sustainable fisheries practices in the region.

Students will work with partners from Environment and Climate Change Canada (ECCC) and Fisheries and Oceans Canada (DFO), as well as partners from the fishing industry (Nunavut Fisheries Association) and other stakeholders.

Project Start Date
We are looking for one Ph.D student to begin in September 2019.

Mentorship Team and Graduate Program
The student will be co-supervised by two principal investigators: Dr. Brett Favaro, at the Fisheries and Marine Institute, and Dr. Jennifer Provencher, at Environment and Climate Change Canada. Dr. Scott Grant (Marine Institute) will serve as a committee member.

The student will be based at the Centre for Sustainable Aquatic Resources (St. John's, NL), and will pursue a Ph.D Fisheries Science degree through the Marine Institute.

Funding
Four years of full stipend support is available (**Subject to BF and JP receiving research grant**).

Qualifications and Skills
Students must normally have an M.Sc degree at the time of application, and qualifications sufficient to be accepted to the Fisheries Science graduate program. This program will involve a mixture of fieldwork and desk-based data analysis.

This program will involve substantial collaboration with industry, government, and academic scientists. It is a priority for this student to be willing and able to work across disciplines, and to both conduct and mobilize knowledge to contribute to real improvements in the science and practice of fisheries.

How to apply
Please send a CV and a statement of interest via email to Brett Favaro, brett.favaro@mi.mun.ca
We will accept applications until July 12, or until a student has been selected.

Contact info
Dr. Brett Favaro, brett.favaro@mi.mun.ca
Jennifer Provencher: jennifer.provencher@canada.ca

Resources

- MUN expectations for students and supervisors

Responsibilities of Supervisors and Graduate Students

Endorsed by SGS Academic Council on September 19, 2016

The fundamental principle underlying this statement of responsibilities between students and faculty is that there must be mutual respect governed by high standards of professional integrity and ethics. These written guidelines are meant to identify, at a high level, guiding principles that can apply to all graduate supervisors and students to help both supervisors and students create and maintain a successful relationship, but are not meant to replace student-supervisor communication.

Supervisors	Students
Supervisors should make themselves familiar with regulations of the SGS and their own academic units, keep abreast of any changes that might affect their students, and ensure that students are informed of these regulations.	Students should become familiar with and meet all appropriate deadline dates and regulations associated with registration and graduate requirements, as specified in the appropriate regulations of the SGS and the academic unit.
Supervisors must convene meetings of students' supervisory committees at least once a year and should annually complete and submit to the SGS a detailed Supervisory Report Form for each student under their supervision.	Students should assist the supervisor in preparing for the yearly report by providing relevant documents or information.
With the input of students, supervisors will provide clear	Students will provide input for and meet the milestones

- ## Letter of Understanding (Committee)

Letter of Understanding for Committee Members of Graduate Studies in the Marine Institute School of Fisheries

Students in the SOF Fisheries Science programs must have a supervisory committee, as defined in the SGS general regulations. This letter is designed to clarify expectations between students, supervisors, and committee members.

We recognize that projects evolve over time, and arrangements may change. Please complete this agreement at every annual committee meeting.

Authorship

- ☐ I expect to be a co-author on all papers deriving from the thesis*
- ☐ I expect to have the opportunity to earn authorship on any paper derived from the thesis
- ☐ Authorship discussions will be held on a paper-by-paper basis
- ☐ Other: _____

*Except when doing so would violate the policies of the academic journals to which the work is being submitted (e.g. if a committee member does not meet the journal's authorship criteria)

Financial

- ☐ I am committing direct financial support to the project. Specify: _____
- ☐ I am not committing direct financial support to the project
- ☐ Other: _____

Mentorship

- ☐ I expect to be closely engaged in the conception and execution of the project**
- ☐ I will be regularly available, but expect the student and supervisor to primarily lead the project
- ☐ I will be sporadically available
- ☐ I will be only be available for annual committee meetings
- ☐ Other: _____

**Would co-supervision be a better model? _____

Data

Do you foresee any issues about data ownership or dissemination?

- Letter of Understanding (Student-Supervisor)

Letter of Understanding for Supervisors and Graduate Students Template

Creating a Letter of Understanding

for Advisors/Supervisors and Graduate Students

This document was prepared by the Canadian Association of Graduate Studies (CAGS-November 2012) to provide member institutions with a comprehensive resource for the development of a *Letter of Understanding* between Advisors/Supervisors and Graduate Students. In an attempt to create a generic template that is applicable to many disciplines, some suggestions may be more appropriate than others. Please use these ideas and others that may be appropriate to develop suitable agreements.

WHY DEVELOP A *LETTER OF UNDERSTANDING*?

Graduate studies are not only a life and career enhancing activity for students, but also

- Funding Plan

Funding plan

Note: This plan is for guidance and transparency purposes only. It is understood that plans may change as the program progresses.

Please try to forecast two years into the program, and indicate all sources:

Program:	☐ M.Sc Fisheries Science (FST)	☐ M.Sc Fisheries Science (SA)	☐ Ph.D Fisheries Science
Semester (Fall, Winter, or Spring)	Amount	Source(s) (underline sources that are CERTAIN)	
Notes:			

MUN supervisor training program

https://citl.mun.ca/TeachingSupport/PD/GraduateSupervision.php

Program in Graduate Student Supervision

The Program in Graduate Student Supervision (PGSS) is designed to provide an introduction for faculty to important aspects of graduate student supervision. The purpose of this program is to review the literature on graduate student supervision and to help faculty prepare for and reflect on their practice as a graduate supervisor.

The program is offered in a blended format over the period of nine weeks. Participants interact with the content through a Brightspace course site and participate in four 90-minute synchronous sessions.

4. Program milestones

All programs: Progress report every 6 months

- https://www.mun.ca/sgs/Supervisory_Report.pdf

Graduate Student Annual Program and Supervisory Report

Adobe Reader, minimum version 8, is required to complete this form. Download the latest version at http://get.adobe.com/reader. (1) Save the form by clicking on the diskette icon on the upper left side of the screen; (2) Ensure that you are saving the file in PDF format; (3) Specify where you would like to save the file, e.g. Desktop; (4) Fill in the required data, save and print the file; (5) Send the completed form to

School of Graduate Studies; Memorial University of Newfoundland; IIC-2012 (Bruneau Centre for Research and Innovation); St. John's, NL A1C A1C 5S7 Canada   Fax: 709.864.4702   eMail: sgs@mun.ca

NB: Not required for all-course programs. Please refer to General Regulation 3.9.3 for guidelines on supervisory report submission.

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UNIVERSITY
School of Graduate Studies

Due **every April 15** and **November 15**: Send to Diane

M.Sc

	Task	Due by	Relevant form
☐	Complete first committee meeting, submit meeting report to Graduate Secretary	End of 3rd month	Graduate Student Annual Program and Supervisory Report
☐	Complete thesis proposal*	ASAP	
☐	Orally present thesis proposal presentation*	ASAP	
☐	Complete courses	End of 4th semester	
☐	Complete any additional courses assigned by committee	As specified by committee	
☐	Complete second committee meeting, submit meeting report	Second year of program	
☐	Perform exit seminar**	Near completion of thesis	
☐	Complete thesis		
☐	Submit thesis for formal examination. Initiate examination procedure: http://www.mun.ca/sgs/masters_examinations.pdf		Supervisory Approval Form. SOF recommendation of examiners form.

Ph.D

	Task	Due by	Relevant form
☐	Complete first committee meeting, submit meeting report	End of 3rd month	Graduate Student Annual Program and Supervisory Report
☐	Complete Ph.D thesis proposal*	Prior to delivering research seminar	
☐	Conduct research seminar**	End of 3rd semester	
☐	Complete courses	End of 4th semester	
☐	**Pass comprehensive exam** See: http://www.mun.ca/regoff/calendar/sectionNo=GRAD-0024#GRAD-0778	End of 7th semester	Recommendation for PhD Comprehensive Examination
☐	Complete any additional courses assigned by committee	As specified by committee	
☐	Every year: Do a committee meeting, file report	Annually	Graduate Student Annual Program and Supervisory Report
☐	Complete thesis and submit for formal review. See: http://www.mun.ca/sgs/PhD_examinations.pdf		Supervisory Approval Form, Thesis/Report Deposit, and Request to Include Copyright Material
☐	Supervisor recommends examiners. Examination begins		SOF recommendation of examiners form
☐	Schedule and complete **defense**		

*Proposals done in 6000 can be accepted for this   **Not centrally tracked

Transfer to fast-track?

Terms of Reference: "Fast-track" transfers in the School of Fisheries Research-Based Graduate Programs

Fisheries and Marine Institute, Memorial University of Newfoundland

Version 1.0
Last updated: 25 Oct, 2018

To be eligible to apply for a fast-track in the Marine Institute SOF grad programs, a student must normally:

- Be enrolled in the fourth semester of study
- Have completed all coursework associated with their program of study
- Be up-to-date with all required documentation within the program, including annual progress report (APRs) indicating acceptable progress through the program
- Have, at minimum, submitted one publication deriving from their M.Sc research (or related work) to a peer-reviewed journal, where that student is first author

5. Comprehensive exams, final examinations, and defenses

Ph.D Fisheries Science Comprehensive Examination Guidelines

Fisheries and Marine Institute, Memorial University of Newfoundland

A **written exam**, which is not a thesis proposal

An **oral exam**, which includes a 1-2 page thesis proposal (NSERC-style), which IS a proposal

See timelines in guidelines

Exam committee:
1. A chair (me, or designate)
2. Supervisor
3, 4, 5, Exam committee (NOT supervisory committee)*
6. Dean's designate (non-voting)

Everyone should pitch in to chair exams

*If there's a co-supervisor, they can be on exam committee

Ph.D Fisheries Science Comprehensive Examination Guidelines

Fisheries and Marine Institute, Memorial University of Newfoundland

Please help us contact and ensure availability of examiners

https://www.mun.ca/sgs/PhD_comp_recommend.pdf

M.Sc exams

		Pre-Submission[1]	
Step	**Time Req'd**	**Candidate/Academic Unit**	**SGS**
1	2-6 weeks[2]	Candidate submits a draft of the thesis to the supervisory committee for approval and applies online to graduate through the Registrar's Office at www.mun.ca/regoff.	
2	1-2 working days	Head/Graduate Officer/Delegate forwards the completed Supervisory Approval form to SGS.	SGS verifies completion of program requirements.
3	1-2 weeks	Head/Graduate Officer/Delegate contacts potential examiners (with advice of supervisor).[3]	
4	1-2 working days	Head/Graduate Officer/Delegate forwards the completed Appointment of Examiners form to SGS.	
		Submission/Examination	
5	1 day	Head/Graduate Officer/Delegate forwards the original copy to SGS when the thesis is submitted.	SGS notifies the academic unit of approval and appoints examiners on receipt of the original copy of the thesis. SGS records the "Thesis Submitted" date as the actual date it is received in the School.
6	1-2 working days	Head/Graduate Officer/Delegate sends the thesis to examiners on notification of approval of examiners and approval of thesis format from SGS and forwards copies of examiners' "send" letters to SGS.	SGS records the date the thesis was sent to the examiners. SGS sends examiners their letter of appointment, Examination Report form, and recommendation for Awards form.
7	ca. 6 weeks		SGS records and monitors the examination process.[4]
8	1-2 working days		SGS receives the examiners' reports; notifies the student/unit head/supervisor of the results and returns the thesis to the head of the academic unit.
		Post Examination	
9	Minor revisions - 6 months; Major revisions - 12 months	Candidate makes the required corrections in consultation with the supervisor; submits final version in PDF/A format to the Head of the academic unit for approval	
10		Once the final version of thesis is approved by the Head of the academic unit, the candidate uploads thesis (along with any supplementary files, including the Request to Include Copyright Material form, if required) to the University Library using the e-thesis submission form on the my.mun.ca portal. Head submits the Recommendation for the Award of a Graduate Degree form to SGS.	SGS records the date of receipt as the "Program Complete" date.
11			SGS clears successful candidate academically for convocation and automatically issues a letter to the candidate.[5]
12			SGS thanks and informs examiners regarding the candidate's status.

Recommendations for Examiners: School of Fisheries Graduate Programs

Form last updated: 22 Mar 2019

It goes fastest if you can help us contact and ensure availability of examiners

Student name (Last, First, Middle):	Student number:

Thesis title

Program
☐ M.Sc Fisheries Science (Fisheries Science and Technology)
☐ M.Sc Fisheries Science (Stock Assessment)
☐ Ph.D Fisheries Science

	Name	Signature
Supervisor		
Co-supervisor (if applicable)		
Committee member		
Committee member		
Committee member		

Please ensure recommendations conform with SGS Guidelines on Examiners. *We do not guarantee these examiners will actually assess this thesis.*

Please paste thesis abstract below:

Basic rules: **Ph.D theses require 3 examiners, one of which is external to MUN.**
M.Sc theses require 2 examiners which are normally both internal. One may be "external"
with justification.

Internal Examiner 1		
Name:	Academic Unit:	
Email:	Phone:	

Internal Examiner 2		
Name:	Academic Unit:	
Email:	Phone:	

Internal Examiner - Alternate		
Name:	Academic Unit:	
Email:	Phone:	

External Examiner 1		
Name:	Employer:	
Address:		
Email:	Phone:	
Reason for Recommendation		

External Examiner - Alternate		
Name:	Employer:	
Address:		
Email:	Phone:	
Reason for Recommendation		