DIGITAL COMMONS © UNIVERSITY OF SOUTH FLORIDA

University of South Florida Digital Commons @ University of South Florida

Marine Science Faculty Publications

College of Marine Science

2022

Navigating Grad School: A Professional Development Workbook for Incoming Marine Science Graduate Students

Mya Breitbart University of South Florida, mya@usf.edu

Kristen N. Buck University of South Florida, kristenbuck@usf.edu

Follow this and additional works at: https://digitalcommons.usf.edu/msc_facpub

Part of the Life Sciences Commons

Scholar Commons Citation

Breitbart, Mya and Buck, Kristen N., "Navigating Grad School: A Professional Development Workbook for Incoming Marine Science Graduate Students" (2022). *Marine Science Faculty Publications*. 2536. https://digitalcommons.usf.edu/msc_facpub/2536

This Book is brought to you for free and open access by the College of Marine Science at Digital Commons @ University of South Florida. It has been accepted for inclusion in Marine Science Faculty Publications by an authorized administrator of Digital Commons @ University of South Florida. For more information, please contact digitalcommons@usf.edu.



Preface

Graduate school is a formative time in the life of a budding scientist – getting a chance to deeply explore and master a scientific field while creating new knowledge – it doesn't get much better than that! Yet, the transition to graduate school can be difficult to navigate for even the most successful undergraduate students. During undergraduate studies, students learn by following a highly structured curriculum with clear expectations and goals, often measured through exams and grades. Thus, learners are dependent on a teacher for guidance, acquisition of content, and evaluation. In contrast, graduate students must embrace self-motivated learning as they take the initiative to independently investigate, critically assess, and create new knowledge. Graduate education, therefore, is centered in the principles of andragogy, whereby graduate student learning is self-driven. Graduate students learn by building upon their ever-increasing reservoir of experience to explore new topics, solve problems, master content, and direct and evaluate their own progress.

Graduate students must navigate what is often referred to as a "hidden curriculum" (i.e., unwritten rules, expectations, and behavioral norms) in their degree programs and along their career path. To even the playing field and provide a solid foundation for every incoming marine science graduate student, we have developed a Professional Development course at the University of South Florida College of Marine Science. Full-semester courses for first-year graduate students promote success and inclusion by building strong peer cohorts, helping students understand the hidden curriculum, facilitating important conversations between students and their advisors, jump-starting student research, and providing additional mentorship and perspectives. In our course, we also guide students in the preparation of application materials for external fellowships to financially support their graduate studies.

After over a decade of experience teaching this course, we created this workbook to better engage our graduate students in developing their educational path. There are many available textbooks on the market about how to succeed in graduate school, but we intend for this workbook to serve as a unique active learning tool for students to reflect upon course discussions and to build a tangible resource that they can refer to throughout their careers. We are making this resource freely available online to broadly support the success of marine science graduate students. We encourage its use in diverse cohorts, where students can benefit from the experiences of their peers and build communities; however, it can also be helpful to individuals as they navigate graduate school.

The workbook begins with an analogy that we have found especially powerful. Think of your graduate degree as if you were designing a cake. Your thesis or dissertation research is the cake itself, with each chapter or publication comprising a cake layer. Everything else that you accomplish or engage with during your graduate experience is the icing and decorations – these activities can range from field experiences to learning new programming languages to outreach. A delicious cake has a good balance between cake and icing, with flavors that complement each other and decorations that allow it to stand out from

all the other cakes. Your research will ultimately serve as the foundation for future work- by this analogy, at a minimum, a good cake must have sturdy layers made from quality ingredients. The icing is your chance to personalize the cake and make it your own. Just as it would be risky to make a cake without a recipe, you will want to adhere to the scientific standards in your field and follow the guidance of your advisor and committee (i.e., experienced bakers). Making an outstanding cake is much easier when you build on prior experience and employ proper tools and cake supports. Our course and this workbook are intended to initiate the conversations, networking, and professional development that will facilitate your endeavor to make your best cake and ultimately become a master baker yourself. We can't wait to see what you create!



Dr. Mya Breitbart (mya@usf.edu) & Dr. Kristen Buck (kristenbuck@usf.edu) Mya Buttant

Kristen N Buck

Please cite this resource as:

Breitbart, Mya and Kristen N. Buck. Navigating Grad School: A Professional Development Workbook for Incoming Marine Science Graduate Students. Designed and Illustrated by Makenzie Kerr. 2022. https://doi.org/10.5038/msc.3545

Table of Contents

	Pages
Chapter 1: Cake vs. Icing Analogy	2-3
Chapter 2: Careers	4-5
Chapter 3: External Funding Opportunities	6-7
Chapter 4: Curriculum Vitae (CV)	8
Chapter 5: Advisor Relationships	9-10
Chapter 6: Keeping up with the Literature	11-12
Chapter 7: Publications	13-17
Chapter 8: Student Panel	18
Chapter 9: Communication	19-20
Chapter 10: Networking	21-23
Chapter 11: Conferences	24-27
Chapter 12: Outreach	28-29
Chapter 13: Timeline	30
Chapter 14: Work-Life Balance	31-36

Chapter 1: Cake vs. Icing Analogy

What types of icing do you have in mind?

What tools do you need to make your cake?



Chapter 1: Cake vs. Icing Analogy

Classify each of these activities as Cake (C) or Icing (I)

Fieldwork to collect data for your first thesis chapter	
Reading literature in your primary field of study	
Volunteering to judge a local science fair	
Earning your SCUBA diving certification	
Learning a new software program for data analysis	
Presenting your research at a conference	
Writing a manuscript for publication	
Writing an op-ed piece for the local newspaper	
Helping collect samples for your friend's research	
Taking a short course to learn a new research method	
Applying for an external fellowship	
Organizing your lab's booth for a local science festival	
Attending seminars in your field	
Attending unrelated seminars to broaden your knowledge	
Serving as student representative on a college committee	
Going to sea as an extra set of hands	
Developing a new collaboration	
Participating in networking opportunities	
Fill in a few of your own:	

Chapter 2: Careers



What other jobs are you interested in?

Why is the degree that you are pursuing essential for this job?

Where would you look for this sort of job?

Find a job advertisement, what are the requirements?

Identify concrete actions that you can take during your grad program to prepare yourself for this career:



Identify someone with your dream job and find their CV or online profile

What experience/training is relevant to their success?

Chapter 2: Careers

Career Panelist Contact Information:

Name:	Name:
Job title:	Job title:
Contact info:	Contact info:
Name:	Name:
Job title:	Job title:
Job title: Contact info:	Job title: Contact info:

List three questions for the career panel:

2)	
3)	

Main takeaways from each panelist:



Chapter 3: External Funding Opportunities

Identify funding opportunity:	Deadline:
Funding amount and term:	Reference letter deadline:
Application components:	
	_└┘
Evaluation criteria:	
How will you address these criteria?	
Reference letter writers:	Why did you choose them?
Name:	
Institution:	
Email:	
Name:	
Institution:	
Email:	
Name:	
Institution:	
Email:	
Information to send to reference letter writers:	
□ Link to instructions □ Deadline	Updated CV
Topics interactions to highlight	

Chapter 3: External Funding Opportunities

Read at least two successful application examples (review with respect to evaluation criteria):

Example 1:

Strengths:

Weaknesses:

Example 2:

Strengths:

Weaknesses:

If you could only fund one of these examples, which would it be? Why?



Chapter 4: Curriculum Vitae (CV)

What are the sections in your current CV?

What are the sections in the CV of one of the career panelists?

What are the sections in the CV of someone with your ideal job?

Items on your CV you are not sure where to put?

What are components that you want to have on your CV by the time you finish grad school?

List 3 people you will have review your CV:

Tips: • Don't inflate your experience. • Have your advisor review your CV. • In prep = Nonexistent!	Tips: • Always send your CV as a PDF. • Balance flair with professionalism. • Keep a living CV.

Chapter 5: Advisor Relationships

Talk to members of your lab: what are their tips for engaging your advisor?



Chapter 5: Advisor Relationships

Brainstorm ways you can use your advisor and lab group's time wisely:



Your advisor should not be your only mentor: who can you add to your mentoring team?



Chapter 6: Keeping up with the Literature

Identify resources for keeping up with the literature:





What are the "must-read" journals of your field?

•	 •	
•	 •	
•	 •	

Talk to successful students and/or your advisor:

What are their reading habits?

How do they keep up with the literature?

Chapter 6: Keeping up with the Literature



Chapter 7: Publications

Talk to your advisor (preferable) or look at their Google Scholar page:

What are the top 5 journals your lab frequently publishes in?

2.	
3.	
Λ	
5	

For 1 or 2 of these journals, go to the journal website and look up the following:

Journal scope:
Types of articles:
Word limits:
Figure/Table limits:
Impact factor:
Open access options:
Publishing/Page costs:
Publisher:
Discount options:
Average time to publication:
University library access:

Authorship

How is author order typically decided or interpreted in your field? In particular, where does the senior author belong?

You are preparing your first manuscript for submission and formulating your author list. Assume you were involved in all steps of the research and writing. Below is a list of people who helped with your project and their contributions. For each person, designate whether they should be a co-author (C), acknowledgment (A), or not mentioned formally (N). Then write your final ordered author list.

Final Author List:



Writing Your Manuscript

What are your advisor's expectations of you in terms of publications for the degree you're seeking: number of papers, status (submitted/accepted/published) in order to graduate?

If you finish all your data collection and have all your figures prepared on January 1st, color in the Gantt chart below with when you think you will accomplish the following:

- First complete manuscript draft sent to your advisor
- Manuscript sent to your co-authors for review
- First submission to a journal
- Assuming favorable reviews that require revisions, when you will submit the revised manuscript
- Approximate date of acceptance assuming one round of revisions
- Publication date

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
First draft												
To co-authors												
Submitted												
Revised												
Accepted												
Published												

Get a second opinion: Ask your advisor or a senior graduate student/postdoc in your lab how your expected timeline fits with their actual experiences.

What helps you write?





Chapter 7: Publications

Publishing is a great responsibility:

- Publications last forever, your reputation depends on them
- You should strive to make your science as solid and impactful as possible
- Cite seminal papers, consider your references carefully
- You are contributing a piece to the tower of scientific publishing building on the foundation laid by others and creating new knowledge, upon which future researchers will build

Ground Rules:

- Check spelling and grammar before sharing always
- Make sure all authors review and approve the manuscript prior to submission
- Acknowledge funding, including fellowships
- Properly credit all people who contributed to the work
- You can only submit a given paper to one journal at a time
- Respect your reviewers, carefully consider and address all feedback in your response
- If the paper is rejected, you can resubmit it elsewhere

Manuscript Submission Checklist:

- □ Create an account on the journal's website
- \Box Names, affiliations, ORCID of each author
- □ Manuscript properly formatted, including references
- □ High-resolution, properly formatted figures
- \Box Suggested reviewers and/or editors
- □ Author contribution statement
- Cover letter

After your paper is published:

- Celebrate!
- Thank your team
- Spread the word
- Update your committee
- Present your work at an upcoming conference
- Remember this feeling and use the momentum for your next project!

Tip: Make sure your manuscript includes page and line numbers.

Tip: Use referencing software.







Publishing WordSearch

Р A Y Q Η Х M C J V С R Р Ν Ι Ν D Ζ V Q Q R Т L Α С L Η Е WI Η Е U Ο Ο Ν Ο Ο R Е C M G G D Т R 0 Т Ι D Т Е Ι Т Ι Ν А Q Η S С Μ D S R S S Е Ι Е Е Η W 0 Α V Р Κ Т Р U R Ο \mathbf{C} F Ι V U \mathbf{C} Υ А А Ι Ο S J Т J Т Т Η V Р Ι R Ν G F Т \mathbf{V} U Т Η R D D L N L \mathbf{C} Ο Х Е S Е Е А J Κ Т Ο U C D L Q Ν 0 Р С С C R R Ν J Υ Р W M Ι R С S D Y J U Η W U G R R Т Η G Ο Ζ Κ Α Υ Υ Т Ι C Ζ V L L Ν Р R Μ Ζ В Х Ο Ι Р Е Ο Κ Ι D Х Α Ν Q Ν Υ W В М Μ L Ο Ο W Р Ο Ο G Α Α Α \mathbf{C} А F Т С \mathbf{C} Ι В Ν R С Ν F J R Μ Α 0 0 U Z D S S S R S Ι J Ζ Υ В Κ 0 А U Т Η Ο R Р V Т Е Е S G O Ν А \mathbf{C} С S Т WU Р Q D Ζ Ζ Υ Т L U \mathbf{S} Е R Х Е Η R S Ν Т С Ι U Μ W U 0 Κ Ζ Υ Ι Р Е Р J Е Т Η Α Ο J V V R Ο А D Z Х Е Е V I С M C G Η А Т Ι М J \mathbf{C} F Ι 0 Е Κ А В S M E J Т W В Ο F S \mathbf{C} Ι Е Ν \mathbf{C} Е Е Т Ι Υ Ν R Ν Η S L В U Р W V Е Ι Ν Κ G WL Е M E Т S \mathbf{C} Κ G Ν G Ι Х W S А Ν 0 D

impactfactor proofs abstract introduction acknowledgements altmetric journal methods author citation openaccess copyright pagecharge predatory discussion preprint editor

proofs publish results review revision webofscience

Graduate Student Panel

Before Class: Prepare five questions for the student panel.



Elevator Speech

Write out your 30-second elevator speech:

Look through your elevator speech above and circle any jargon. What alternative language can you use?



Practice your elevator speech for several audiences, adjusting accordingly. List the audiences here and check them off once you've practiced.

Pro	fessional Development Class

Elevator Speech Feedback

What did you like about your elevator speech?

What could you improve on?

Insights you got from listening to the other elevator speeches:

If you had to give an even shorter speech, what are the most important things to retain?



Chapter 10: Networking

What is your go-to topic for small talk?

What is your comfort level with these approaches to meeting and getting to know people in your field? Identify one face for each approach:

•	Email $(\bullet \bullet)$ $(\bullet \bullet)$ $(\bullet \bullet)$	Tip: Be friendly! Team up with other people who
•	Call on the phone $(\bullet \bullet)$ $(\bullet \bullet)$ $(\bullet \bullet)$	are on their own.
•	Private engagement on social media $(\bullet \bullet) (\bullet) (\bullet) (\bullet) (\bullet \bullet) (\bullet \bullet) (\bullet) (\bullet) (\bullet \bullet) (\bullet) (\bullet \bullet) (\bullet) (\bullet) (\bullet) (\bullet \bullet) (\bullet)$	Tip: Take advantage of
•	Public engagement on social media $(\bullet \bullet)$ $(\bullet \bullet)$ $(\bullet \bullet)$	student-focused opportunities.
•	Approach at a poster session $()$	Tini
•	Introduce yourself at a mixer $() () () () () () () () () ($	Follow social media hashtags.
•	Initiate small talk at a chance encounter $()$	
•	Invite to coffee/meal $()$ $()$ $()$ $()$ $()$ $()$	Tip: Avoid assumptions about
•	Invite to give a seminar $(\bullet \bullet)$ $(\bullet \bullet)$ $(\bullet \bullet)$	politics and religion.

Given your reactions to each of the above options, identify opportunities to engage with prominent members of your field...

Within your comfort zone:

Pushing your comfort zone:

Chapter 10: Networking

Curate Your Online Presence







Chapter 10: Networking

Fill in your academic family tree:

-Identify active scientists who have worked with the same mentors as you.



Identify conferences you hope to present at:

Conference Name	Date	Location	Abstract Deadline	# Attendees

What are your advisor's prerequisites for conference attendance or presentation?

Are they different for local versus national meetings?

When thinking about presenting your work at a conference...

What are you most excited about?

What are you most anxious about?

Conference preparation:

- □ Identify conference and guidelines/deadlines
- \Box Write abstract with your advisor
- $\Box\,$ Send to co-authors for review
- \square Finalize abstract and submit following conference guidelines
- \square Apply for any applicable travel support, early career activities, conference events
- \Box Register by the Early Bird Deadline
- □ Prepare your talk or poster
- □ Practice, practice, practice!

Practice opportunities: 1) _____ 2) _____

3) _____

Chapter 11: Conferences

Practice makes perfect:

- Practice your presentation out loud •
- Don't rely on Presentation View • - know your slides
- Bring backups of your presentation •
- Use the microphone •
- Memorize transitions and first 1-2 slides •
- Stay on time, leave time for questions ٠
- Upload early and double check every slide ٠ and figure in the Speaker Ready Room
- If the chairs introduce you, don't repeat the ٠ introduction, you just gained a few seconds!



Conference To Do List:

Before: During:

> **After/Debrief:** Tip: Whenever possible, go with the flow at a conference... but honor your personal needs (energy, sleep, food, safety).

Good Presentation BINGO

Fill in the remaining squares with good characteristics you observe during seminars.

В	Ι	Ν	G	0
Informative titles on each slide				
	Good font size			
				Clear take-away messages
		Photo attribution for all graphics		

Chapter 11: Conferences

Presentation Feedback

What did the class like about your presentation? What did you feel especially good about?

What do you need to change before your next presentation? Did you identify any bad habits from the recording?

Think of your favorite presenter... Why were they your favorite? How could you incorporate aspects of their style into your own presentation?

Chapter 12: Outreach

OUTREACH QUIZ

Identifying your target audience

1) Do you enjoy being at large events and talking with big groups of people?



Yes! The bigger the better. I love concerts, farmers markets, and theme parks.



Sometimes, but smaller groups are better. I'm thinking club meetings and trivia nights.

c

b

Not at all! Groups overwhelm me. I prefer to watch movies at home or read books alone.

2) Do you feel comfortable working with kids?

- **a** Not so much. I have no idea how to work with kids.
 - Sometimes. I can bring out my inner kid when I need to.
 - Yes! Kids are so fun and creative. They ask the best questions.

3) How comfortable are you presenting in front of a crowd?

- **a** Easy peasy lemon squeezy. Anytime. Anywhere.
- b I

C

- I can do it with some mental preparation.
- Petrified! I have bad stage fright.

4) Which outreach activity appeals to you the most?



С

Teaching a group of kids about my research.

Creating a blog post about my research.

Presenting my research in front of a group of adults interested in science.

5) When are you most available for outreach?



My schedule is unpredictable, hard for me to say.

Nights/weekends.

Daytime/weekdays.

7-10 Points

Kid-friendly

You find working with young people fun and entertaining. Try teaching a class at a school, running a booth at a science festival, or volunteering at a summer camp. Inspire young minds to pursue STEM fields.

4-6 Points

Better with age...

You relate better to adults than to kids. Try presenting at a science café, community group, or senior citizen center. You could also run a science communication workshop for undergraduate students or work with policy makers in your local community.

0-3 Points

Behind the scenes guru!

You're happiest when you're not in the spotlight. Try writing a blog or op-ed, preparing a lesson plan for local classrooms, creating a piece of research-focused artwork, or being a pen-pal.

Advice for Outreach

Know your audience

• Before starting a presentation, blog, or building an activity, consider the audience you would like to reach. Make sure you use words they will understand and relate to.

Avoid jargon

• If you use a science word specific to your field, make sure to explain it in layman's terms. People will tune out if you start to sound like a textbook.

Make a connection

• Always try to connect with your audience through a local place, daily activity, or shared interests and values.

Use metaphors

• Relate your work to familiar activities. For example: Picking fish eggs out of a plankton sample is like Easter egg hunting.

Encourage curiosity

• Give time for your audience to ask questions and relate your work to their own experiences.

Engage the senses

• Let your audience feel what it is like to be a scientist. Bring examples of your work for them to touch and hold or show photos and videos. When telling a story, incorporate the senses (how you felt, what you saw or smelled).

Practice makes perfect

• Whether it is an in-person event, writing, or drawing, practice makes perfect. Show people your work or have them try out your activity. Feedback will polish your final product.

Document

• Immediately after the outreach, write notes about what worked well and what could be improved for next time.

Assess

• Identify your outreach goals and determine how you will know if you were successful. Consider how you can quantify your success (e.g., number of participants, pre- and post-surveys, website analytics).

Don't reinvent the wheel

• Find out which ongoing activities you can contribute to.

Chapter 13: Timeline

Using the graduate student checklist as a guide, place the following milestones on your timeline: core courses, form committee, proposal defense, PhD exam(s), committee meetings, fieldwork/ cruises, important conferences, manuscript submission(s), submit thesis to committee, sufficiency meeting, defense, final submission to ETD.



What are your commitments?

Fill in your typical weekly schedule (change time range if needed):

Monday	Tuesday	Wednesday	Thursday
7 AM	7 AM	7 AM	7 AM
8 AM	8 AM	8 AM	8 AM
9 AM	9 AM	9 AM	9 AM
10 AM	10 AM	10 AM	10 AM
11 AM	11 AM	11 AM	11 AM
12 PM	12 PM	12 PM	12 PM
1 PM	1 PM	1 PM	1 PM
2 PM	2 PM	2 PM	2 PM
3 PM	3 PM	3 PM	3 PM
4 PM	4 PM	4 PM	4 PM
5 PM	5 PM	5 PM	5 PM
6 PM	6 PM	6 PM	6 PM
7 PM	7 PM	7 PM	7 PM
8 PM	8 PM	8 PM	8 PM
9 PM	9 PM	9 PM	9 PM
10 PM	10 PM	10 PM	10 PM
11 PM	11 PM	11 PM	11 PM

Friday	Saturday	Sunday	Notes
7 AM	7 AM	7 AM	
8 AM	8 AM	8 AM	
9 AM	9 AM	9 AM	
10 AM	10 AM	10 AM	
11 AM	11 AM	11 AM	
12 PM	12 PM	12 PM	
1 PM	1 PM	1 PM	
2 PM	2 PM	2 PM	
3 PM	3 PM	3 PM	
4 PM	4 PM	4 PM	
5 PM	5 PM	5 PM	
6 PM	6 PM	6 PM	
7 PM	7 PM	7 PM	
8 PM	8 PM	8 PM	
9 PM	9 PM	9 PM	
10 PM	10 PM	10 PM	
11 PM	11 PM	11 PM	



Fill in the pie chart with your planned schedule breakdown.

Color	Activity

For one week, monitor l	how you actually	spend your time:
-------------------------	------------------	------------------

Monday	Tuesday	Wednesday	Thursday
7 AM	7 AM	7 AM	7 AM
8 AM	8 AM	8 AM	8 AM
9 AM	9 AM	9 AM	9 AM
10 AM	10 AM	10 AM	10 AM
11 AM	11 AM	11 AM	11 AM
12 PM	12 PM	12 PM	12 PM
1 PM	1 PM	1 PM	1 PM
2 PM	2 PM	2 PM	2 PM
3 PM	3 PM	3 PM	3 PM
4 PM	4 PM	4 PM	4 PM
5 PM	5 PM	5 PM	5 PM
6 PM	6 PM	6 PM	6 PM
7 PM	7 PM	7 PM	7 PM
8 PM	8 PM	8 PM	8 PM
9 PM	9 PM	9 PM	9 PM
10 PM	10 PM	10 PM	10 PM
11 PM	11 PM	11 PM	11 PM



Friday	Saturday	Sunday	Notes
7 AM	7 AM	7 AM	
8 AM	8 AM	8 AM	
9 AM	9 AM	9 AM	
10 AM	10 AM	10 AM	
11 AM	11 AM	11 AM	
12 PM	12 PM	12 PM	
1 PM	1 PM	1 PM	
2 PM	2 PM	2 PM	
3 PM	3 PM	3 PM	
4 PM	4 PM	4 PM	
5 PM	5 PM	5 PM	
6 PM	6 PM	6 PM	
7 PM	7 PM	7 PM	
8 PM	8 PM	8 PM	
9 PM	9 PM	9 PM	
10 PM	10 PM	10 PM	
11 PM	11 PM	11 PM	



Fill in the pie chart with your real schedule breakdown.

Color	Activity

Plan vs. Reality!

How did your work this week contribute to the cake vs. icing analogy?

Did your plan match your reality? Why or why not?

What steps can you take to reconcile your Plan vs. Reality pie charts?



Grad School Maze



What kind of obstacles do you think you might encounter in grad school and how will you use the skills you learned in this course to navigate them?

Notes

Notes

Notes

