Graduate Board
Thursday, October 22, 2020
By Zoom:

Join Zoom Meeting
ID: 98784508458
Password: 871266
(US) +1 301-715-8592

3:00 pm

AGENDA

1. Review and approval of the September 24, 2020 Graduate Board minutes

2. October 6, 2020 Graduate Curriculum Committee report

3. Announcements
   - Alfond Family Foundation gift
   - Course teaching modalities for spring
   - Update on director search for the doctoral program in physical therapy
   - Graduate enrollment/diversity plan – Fiona Libby
   - Graduate Flash Surveys – Katie Rossignol

4. Review of program/curricular changes:

   - Substantive change proposals in Nursing (transition to online)
   - Proposed accelerated track in biomedical engineering

5. Update from CITL on Graduate Teaching Academy

6. Discussion regarding waiving standardized test scores

7. Graduate student mental health

8. Implications of unified accreditation

9. Items arising

Graduate Board
Thursday, September 24, 2020
By Zoom:
Join Zoom Meeting
ID: 97608527287 Password: 918546
3:15 pm

AGENDA

Attendance: P. Agrrawal, J. Artesani, C. Beitl, J. Bonnet, T. Bowden, S. Butler, A. Cruz-Uribe, S. Delcourt, D. Dryer, S. Fraver, J. Gill, M. Egenhofer (for H. Onsrud), H. Greig, W. Gramlich, N. Hall, S. Jain, Z. Jin, S. Klein, A. Knightly, K. Kruetz, M. LaRocque, J. McClymer, E. McKillen, I. Mette, S. Ohno, E. Pandiscio, F. Peterson, P. Poirier, L. Rickard, D. Rooks-Ellis, C. Sponarski, J. Stoll, K.Varahramyan, K. Vekasi, C. Villacorta Gonzales, V. Weaver, T. Yoo, S. Zare.

Guests: F. Libby, C. Burgess, K. Rossignol, M, Teisl.

3:15pm – meeting called to order

1. Welcome and introductions – new members – Sharon Klein, Shawn Fraver, Max Egenhofer (proxy for Harlan Onsrud), and Elizabeth McKillen

2. Review and approval of the May 14, 2020 Graduate Board minutes
   A. Knightly moved to approve minutes, I. Mette seconded the motion.
   Discussion: Max Egenhofer asked about GIS courses offered experimentally through the department of anthropology. Scott replied that the 2 courses were approved by GB conditionally in the spring pending a meeting of stakeholders which did occur over the summer. These courses should have been included in the September Graduate Board packet to be recorded in the minutes and will be included in October. Scott mentioned that a university wide meeting is needed to discuss the organization of GIS offerings at both the undergraduate and graduate level – an item he intends to discuss with the Provost.
   I. Mette – revise spelling of last name in May GB minutes
   M.Egenhofer, A.Cruz-Uribe, S. Fraver, S. Klein, E. McKillen – all abstained from vote as they were not present at the May meeting.
   Otherwise, unanimous approval.

3. September 15, 2020 Graduate Curriculum Committee report
   ANT 560 – Research Design and Methods

ECO 553- Financial Economics
EHD 577- Discource Analysis
FSN 560 – Research Methods in Community Nutrition

Modifications:
ANT553 Institutions and the Management of Common Pool Resources

Motion to accept CC report – Nancy Hall, Second – Kristin Vekasi
No further discussion. Unanimous vote to approve.

4. Announcements

S. Delcourt mentioned that over the summer he was part of the return to campus committee chaired by Jeff St. John and participated in President Ferrini-Mundy's university wide conference calls. Due to extensive planning and preparation, UMaine has been successful in containing the outbreak of COVID-19 on campus with the exception of very few cases when the semester started.

- Overview of research and graduate enrollment efforts – Vice President and Dean Varahramyan
  No question, past six months have been so challenging with COVID-19. It has been the worst of times – with all the challenges – however, it has been some of the best of times for graduate enrollment.
  Partnership with programs and faculty across the university have contributed to our success.
  Doctoral graduate studies is key to our growth – we need to emphasize our growth in this area to achieve Carnegie R1 status.
  We are becoming better and better at attracting external funding thanks to your efforts. National Science Foundation NRT grants – we currently have 3 – something in the order of $3 Million. We have one training grant from NIH as well.
  VP Varahramyan noted that the future for research and graduate studies is very bright and thanked members of the Graduate Board for their efforts.

S. Delcourt – shared the 2020 Graduate Admissions Summary – applications, admissions and new student enrollments (combined 2020 summer and fall) were all up roughly 30% over last year. These are far and away the highest admissions numbers ever recorded in the Graduate School.

In economic downturn, it is not unusual to see a surge in graduate enrollment – however there was a lot of effort made to accept more students, be flexible with application deadlines, etc… Official snapshot was 2278 on 9/28 – we have a record number of doctoral students (currently at 505). The more external funding we receive, the more successful we are at improving our doctoral numbers.

S. Jain – congratulations to the Graduate School team for their efforts!
S. Delcourt – Grad School team – led by Fiona Libby– were able to achieve record numbers with each of the grad departments' cooperation and support.
S. Delcourt – shared the admissions funnel report (Fall 2020). We have seen an uptick in applications from underrepresented minorities as well due to the broader recruitment efforts that have increased the overall number of applications.
Grad certificate applications have increased as well – with 51% more applications for fall – but, most of the increase in enrollment is in master's and doctoral programs.
Non-degree graduate student enrollment is down; not surprisingly – many are K-12 teachers who are currently struggling with remote instruction in their own classrooms.

5. Review of program/curricular changes:

   - Proposed graduate certificate in *One Health and the Environment* (attached). Welcome Interim Dean Mario Teisl.
     This proposed certificate replace the previously approved certificate in Environmental and Rural Health. One of the goals of the previous certificate was to develop a formal curriculum related to public health. However, the proposed certificate in *One Health and the Environment* has essentially the same curriculum.
     M. Teisl – we received some additional dollars to hire six new faculty for this graduate program. Also a REU grant for the next 4-5 years. We have had one cohort – and delayed the second due to COVID.
     NRT grant – first cohort this fall. (NSF research traineeship grants); involves EES, SBE, School of Marine Sciences, and School of Food and Agriculture.
     A good step for us – to develop a certificate.
     t is a good option for individuals who are interested in public health.
     In some of the earlier grants, we partnered with USM to offer some public health courses via polycom – and the idea was for them to eventually be online.
     We would like to get this approved relatively quickly and then add some potential USM courses from their MPH program.
     We will try to build this program with stakeholders as we go.
     We have to train students on working with stakeholders. Helping students understand the issues that stakeholders are facing.
     In terms of science communication, all 3 NRT projects have the same component of the science communication workshop. (It is over a week long workshop on how to communicate and work with professional audiences.)
     Workshops are not just open to NRT students – they are open to anyone who wants to take them. Goal is to have more students – any student who wants to attend our classes certainly can. We want our new

curriculum to be sustainable.
J. McClymer – suggested that we look at the idea of adding USM courses to curriculum for a future meeting.
S. Delcourt – now that UMS has obtained unified accredidation, there could be more efficiencies and opportunities to combine graduate instructional efforts with USM and UM-Farmington. It could allow us to free up some of our faculty time.
S. Delcourt asked Interim Dean Teisl who would continue as the PI for this project? M. Teisl will assume that role while he is the interim Dean and would like to maintain status as the PI moving forward.

- Update on the proposal for a MS in *Data Science and Engineering*
    i. Is headed to the next board of trustees meeting and should be approved before the end of the fall semester.
- Update on plan for a doctoral program in *Physical Therapy*
    i. A job description has been approved and sent to Human Resources for a Director search – and the UM System has approved 2 years of funding for the founding director to get the program up and running. There are some potential synergies with Athletic Training at UMaine, UMPI, and USM.
    ii. UM System did a Burning Glass analysis for Physical Therapy and there is a large demand for physical therapists – and the only local program is at Husson University. There was an initial discussion as to whether it would come from UMaine or USM – and it was determined that UMaine will be the location.
    At this point there are no Physical Therapy faculty. That would be the first step. It is sort of a backward process. We need to have the faculty in place to create the policies and procedures, curriculum, etc…
    The director position will be a tenure track position.
    The initial plan would be to locate this program in NSFA.
    S. Delcourt will keep the Grad Board apprised as the University moves forward.

4. Announcements (resumed)
    - Graduate enrollment/diversity plan – Fiona Libby (see attached Diversity information and statistics.)
    Even though it is only September, we are thinking about the next admissions cycle.
    One of our goals this year is to increase diversity in our enrollment. We have made some strides in this direction over the past 2 years. However, there is room for improvement.
    Fall 2020 – about 12% of our incoming class were students of color.
    There is discrepancy when we look at PhD programs. Our average admission for white applicants is 33%, and for black applicants is 14%.
    There is also a discrepancy in our yield with underrepresented minority

(URM) students enrolling in graduate study at much lower rates.
It is an initiative that we have to work on at every level. We are in a northern state that is not particularly diverse, and we are at the end of the educational pipeline. How could we get more diverse students to apply – and can we remove any hurdles for them in the application process?
Ideas on ways we can support diversity in admissions:

Look for ways to connect with and mentor underrepresented students.
Help to create a sense of community for these students.
Conferences that reach out to diverse populations.

As we get these more diverse applicants, are there other ways we can quantify qualities to admit? Sometimes these students lack past research experience due to lack of opportunity.
Any ways to remove hurdles to the application process? GRE scores – some programs have already waived test scores.
Advisor match can be a big hurdle if students are not familiar with the process. We are trying to help students become more aware of how graduate admissions works.
Connect students and foster community within programs. (Mentors can be very helpful in peer groups, etc…)

J. Gill – suggests waiving the GRE as stated by F. Libby. (SBE did this about 2 years ago.)
S. Delcourt – Graduate School is very supportive of waiving the GRE – and also waiving the application fee (however, it covers about $125K of our operating budget) but, we know that other UMS admissions offices have done it.

W. Gramlich – what is the Graduate School doing to help improve recruitment – especially if we are getting rid of the GRE? More applications = more diverse applications.
Marketing in larger areas that will encourage diversity, etc…

How well can we make people feel included?
S. Delcourt – talked about a holistic admissions process as a way to help avoid implicit bias.
Chris Richards, VPEM, said that many students are choosing Maine because of the safe environment, etc…

- Graduate Program Landing Pages and call for edits - Crystal Burgess

  Two requests sent in the past two weeks:

  i. Program admissions requirements to ensure we have accurate information for the application and for our website to help alleviate questions from applicants. Should take about 5 minutes.
  Review of deadlines – making sure that we have an accurate listing of application deadlines.

ii. Approximately 1 hour to complete – information on how to "sell your program" – (Graduate School Program Information Spreadsheet). Recruitment teams can use this information to help all programs recruit new students – and update our landing pages for each program. Any questions – please ask Crystal.
S. Delcourt emphasized that the more information we can provide applicants up front, the fewer admissions-related emails program coordinators will receive later on.

- Graduate Flash Surveys – Katie Rossignol
  i. Surveys each week – 1st = summer communications
     i. 2nd = how did the first week of classes go.
     ii. 3rd is to see how students are handling stress.

  S. Delcourt would like to have a future discussion with the Grad Board regarding managing student stress – especially with remote learning and pandemic, etc… President is very interested in data regarding how students are doing.

- UMaineGRAD update– Katie Rossignol
  i. Mug Club – Shane Smith – Supervisor Relationships
  ii. Next Month – Diversity and Inclusion
  iii. November – Public Speaking and the Virtual Environment
  iv. December – Anne Fensie – writing tips and tricks to the IRB Process.

  NSF fellowship application workshop last week – well attended.

  Summer journal club – and we have continued throughout the semester once a week. Great interdisciplinary group participation!

  Writing Group (3:30 – 5:00) – allows students to give and receive peer review of writing.

  Library also has a lot of great programming – listed on their web-site.

  We have many of these events on the Graduate School's professional development page on the website as well, including CITL events, Career Center, etc.
  (See: https://umaine.edu/graduate/students/professional-development/)

- Continued discussion on the development of graduate program learning

outcomes – next steps

i. A few different departments have asked if they could defer work on this with everything else going on this fall.
Mandy Barrington and Ryan Weatherbee can work with programs – even if you need more time. They will have an application you can fill out to request more time.
Workshop on Oct. 6 at 10am to help with developing learning outcomes – they need to be measurable to be useful.
Institutional research originally wanted this information by the end of the fall semester.
W. Gramlich would like help to measure ethics. S. Delcourt suggested RCR enrollment, research methods that deals in ethics, publishing expectations, mentoring & advising expectations. All could become part of the measurable components.
PhD. program outcomes – one underlying goal is to train the next generation of faculty.
K. Vekasi appreciated the opportunity to have an extension. Institutional Research and Assessment has promised an abbreviated deferral process.
J. Gill – is NECHE willing to give us an overall extension? Delcourt mentioned that because we have identified broader goals which should satisfy NECHE for this academic year.
N. Hall – are there things that don't fit into the 3 basic grad school goals? S. Butler mentioned that the framework did work for the SWK program.
P. Poirier – nursing outcomes fit nicely into the broader goals.
Email Scott if you feel you need more time. It is harder for faculty in programs to develop program learning outcomes on Zoom with level of engagement, etc….vs face to face meetings.

6. Setting priorities for AY20-21 – give some thought to this. Provost Volin will be invited to attend Grad Board.
Julie Posselt (Assistant Professor of Education, USC) is also a possibility to discuss bias in graduate admissions.
We will be sending out an email looking for feedback on timing of GB meetings.

7. Items arising
   - Alicia Cruz-Uribe – competing forms & versions of Adobe – faculty having issues with Course Proposal Forms – Creative Cloud – text boxes don't automatically resize. Possibility of running older versions of Adobe than the Graduate School? Crystal will work on identifying and resolving the problem.

Meeting Adjourned 5:15 PM

CURRICULUM COMMITTEE REPORT

The Curriculum Committee met on October 6th, 2020 and, is recommending the following courses to the Graduate Board for approval at its October 22nd meeting.

New Courses:

AVS 511 Advanced Aquaculture

AVS 554 DNA Sequencing Analysis Lab

ERS 503 Graduate Research Seminar in Earth and Climate Sciences

MEE 639 Advanced Radiative Heat Transfer

NUR 526 Family Nurse Practitioner-Care of Adults 1 (Clinical)

Modifications:

NUR 522 Family Nurse Practitioner-Care of Adults 1

SIE 503 Principles of Experimental Design

SIE 516 Virtual Reality: Research and Applications

Approved conditionally in May 2020 meeting

ANT 521 Geographic Information Systems I

ANT 522 Geographic Information Systems II

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Aquaculture/SFA

COURSE DESIGNATOR AVS COURSE NUMBER 511 EFFECTIVE SEMESTER Spring 2021

COURSE TITLE Advanced Aquaculture

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [x] New Course
- [ ] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [x] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify) _____

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Robert Causey Digitally signed by Robert Causey Date: 2020.09.03 14:56:43 -04'00'

College(s) Curriculum Committee Chair(s) (if applicable)

College Dean(s)

Christopher Gerbi Digitally signed by Christopher Gerbi Date: 2020.09.04 13:49:37 -04'00'

Graduate School (sign and date)

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Designator: AVS
Number: 511
Title: Advanced Aquaculture
Prerequisites: AVS 211 or SMS211, graduate standing or permission. A good understanding of biology, chemistry, marine science and fish biology is recommended but not required.
Credit Hours: 3
Description: Advanced aquaculture will build upon the foundations of the introduction to Aquaculture course (AVS/SMS211). Students will be exposed to more advanced concepts including aquaculture engineering and system design; broodstock management; live feeds and algae production; economics and marketing; as well as biosecurity. Application of principles and concepts presented in this class will be emphasized. At the conclusion of this course students should have a firm grasp of critical concepts in aquaculture and be better prepared for careers in private, state, and federal organizations as well as academia.
AVS 411 and AVS 511 can not both be taken for credit.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

- [ ] Applied Music
- [ ] Clinical
- [ ] Field Experience/Internship
- [ ] Research
- [ ] Studio
- [ ] Laboratory
- [x] Lecture/Seminar
- [ ] Recitation
- [ ] Independent Study
- [ ] Thesis

Text(s) planned for use:

Course instructor (include name, position, teaching load):

Tim Bowden, Associate Professor, 25%

Reason for new course:

Following a number of faculty retirements there has been a severe shortage of aquaculture related classes available on campus, especially at higher levels. This class aims to help fill the gap previously created. The course adds higher-level, and potential graduate capacity, to this important subject area, expanding the course coverage and providing the opportunity for students to gain greater insight into aquaculture. Aquaculture is one of the seven key areas identified by the state, and remains the only expanding area of agriculture world-wide.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

(●) No. The department will not request additional resources for this course.

( ) Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This course will impact the Aquaculture graduate program that is currently interdisciplinary, mainly with the School of Marine Science. There is a deficit of available courses. Addition of this course will significantly strengthen aquaculture relevant programs. Discussions with Dr Ellis, the SMS Undergraduate Coordinator, have been extremely positive.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Annually. No

Syllabus – 2020

Course Information

Course designator, number and title - **AVS 511, Advanced Aquaculture**

Description – Advanced aquaculture will build upon the foundations of the Introduction to Aquaculture course (AVS/SMS211). Students will be exposed to more advanced concepts including aquaculture engineering and system design; broodstock management; live feeds and algae production; economics and marketing; as well as biosecurity. Application of principles and concepts presented in this class will be emphasized. At the conclusion of this course students should have a firm grasp of critical concepts in aquaculture and be better prepared for careers in private, state, and federal organizations as well as academia. AVS 411 and AVS511 cannot both be taken for credit.

Credit hours – 3

Course details – TBA

Prerequisites – AVS211 or SMS211, graduate standing, or permission. A good understanding of biology, chemistry, marine science and fish biology is recommended but not required.

Course Delivery Method

Mode of instruction – In-person

Time options – synchronous

Digital services, hardware, software

- Learning management system – Brightspace
- Video recording/sharing – Kaltura, Zoom or any similar software

Faculty Information

Dr Tim Bowden, School of Food and Agriculture

Phone: 581-2772

Email: timothy.bowden@maine.edu

Messages: by email or to Department Office – 2nd floor Rogers Hall.

My office: 237 Hitchner Hall, by appointment only please.

Instructional material

There is NO required text for this class.

The following text is optional and can be found in the UM Bookstore or as an E-book through the Fogler Library:

Aquaculture – Farming Aquatic Animals and Plants, Third Ed. Lucas, J. and P. Southgate, 2018, Blackwell Publishing. A thorough and up to date review of many aquaculture related topics.

Several other titles may be useful (all available through Fogler Library):

Aquaculture Production Systems. Tidwell, J. 2012, Wiley-Blackwell.

The Economics of Salmon Aquaculture. Asche & Bjorndal. 2011. Wiley-Blackwell.
The History of Aquaculture. Nash. 2011. Wiley-Blackwell.
Shellfish Aquaculture and the Environment. Shumway. 2011. Wiley-Blackwell.
Recent Advances and new species in Aquaculture. Fotedar & Phillips. 2011. Wiley-Blackwell,
Practical Flatfish Culture and Stock Enhancement. Daniels & Watanabe. 2011. Wiley-Blackwell.
Seaweeds: Edible, Available, and Sustainable. 2013. Ole Mouritsen. University Of Chicago Press; Translation edition (June 14, 2013).

Additional material will be made available through Brightspace and will include; web links, reports, research publications and statistical data.
In addition, there is a Facebook page relevant for this class. This has a lot of relevant links
Introduction to Aquaculture at University of Maine

Learning outcomes

Course goals

The primary objective of this course is to develop a deeper understanding of some of the more advanced principles and practices of aquaculture from local, national and international perspectives. At the end of the semester, you should have an in-depth understanding of the parameters that contribute to a successful aquafarm, and the factors controlling the growth and development of the aquaculture industry.

The course is taught mostly using traditional lecture formats, integrated with informal discussion groups.

Instructional objectives

It is hoped that students will learn the diverse issues relating to aquaculture and obtain an understanding of how to setup and run a successful aquaculture business. Students will also learn how to source and distill relevant information, and to arrange that information in a video presentation to the rest of the class and also in an essay, both on a specific topic.

Student learning outcomes

Students will learn:

At the end of this course, each student will be able to:

- Design and engineer aquaculture systems for a wide variety of commercially important species.
- Explain the complex relationships between the animal and its culture environment and how these interactions influence growth, disease, survival, and reproduction.
- Describe the role of aquaculture in stock enhancement and restoration efforts.
- Formulate a comprehensive biosecurity plan for an aquaculture production site using risk identification and management strategies.

- Apply principles and concepts from this course to solve problems that may be encountered in aquaculture research and commercial production.

Attendance

Attendance will NOT be taken.

Assessment

Quizzes and exams

A total of 14 quizzes will be administered online over the course of the semester covering material presented from that week. Quizzes will be multiple choice and questions will come from lecture, readings, and other supplementary materials provided by the instructor. Students will only be allowed to access quizzes once.

The mid-term exam will cover all material presented from weeks 1 through 8. The exam format may include multiple choice, short answer, and essay questions and will be administered online.

The final exam will be cumulative and cover all material presented from weeks 1 through 15. The exam format may include multiple choice, short answer, and essay questions and will be administered in class.

Video Assignment

A broad range of topics have been covered in the Introduction to Aquaculture and Advanced Aquaculture classes, but we have barely scratched the surface. This assignment gives students the opportunity to become the instructor. All students will be required to develop a 20 minute PowerPoint lecture on an aquaculture topic of their choice. The lecture should be developed as if it were an additional online module for this class. Lectures should be developed using Kaltura or similar. Students will also be required to develop a short 5 question quiz that tests the knowledge of someone who has viewed the lecture. *More details of the assignment will be available through Brightspace.*

Written report

Each student will write a report (approx. 2000 words) on the impact of a specific piece of legislation (state or federal) that is relevant to aquaculture. This will discuss the expected impact of the legislation and the pros and cons of this legislation as it pertains to aquaculture

Grading summary:

25% Quizzes
20% Mid-term exam
15% Video assignment
15% Written report
25% Final exam

Grading Scale (%)

A	94-100
A-	90-93.99
B+	86-89.99

B	82-85.99
B-	78-81.99
C+	74-77.99
C	70-73.99
C-	66-69.99
D+	62-66.99
D	58-61.99
F	< 58

Learning modules

Week	Topic	Assignment
1	Aquaculture overview; Water quality/chemistry (ponds and RAS)	Quiz 1
2	Aquaculture engineering	Quiz 2
3	Recirculating system design and considerations	Quiz 3
4	Broodstock management	Quiz 4
5	Induced spawning and captive reproduction of fishes	Quiz 5
6	Larval systems/production	Quiz 6
7	Protozoan and metazoan parasites in aquaculture	Quiz 7
8	Bacterial diseases and viruses in aquaculture	Mid-Term Exam
9	Stock enhancement; Restoration aquaculture	Quiz 8
10	Aquaculture economics	Quiz 9
11	Live feed cultivation	Quiz 10
12	Molluscan biology and aquaculture	Quiz 11
13	Integrated aquaculture health management	Quiz 12
14	Algae culture and Sea vegetables	Quiz 13
15	Applied physiology for aquaculture; Biotechnology in aquaculture	Quiz 14
Finals	NO LECTURE	Final Exam

Policies and requirements

This syllabus represents current plans and objectives for this course. As the semester progresses, changes may need to be made to accommodate for timing, logistics, or to enhance learning. Such changes, communicated clearly, are not unusual and should be expected. Students are expected to regularly visit the course website for course communications.

Late submission and make-up requests

It is the responsibility of the student to attend lectures, and access readings, quizzes, and exams and to maintain satisfactory progress in the course.
All assignments, quizzes and exams are to be submitted by stated deadlines. Late submissions will not be accepted without the prior written consent of the instructor and will receive a grade of "0".

Course schedule disclaimer

In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Students Accessibility Services Statement

If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (Tim Bowden) privately as soon as possible.

Observance of religious holidays/events

The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

Academic Honesty Statement

Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.
Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314: https://www.maine.edu/board-of-trustees/policy-manual/section-314/

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell any of your teachers about sexual discrimination involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

Behaviors that can be "sexual discrimination" include sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct, and gender discrimination. Therefore, all of these behaviors must be reported.

Why do teachers have to report sexual discrimination?

The university can better support students in trouble if we know about what is happening. Reporting also helps us to identify patterns that might arise – for example, if more than one victim reports having been assaulted or harassed by the same individual.

What will happen to a student if a teacher reports?

An employee from Title IX Student Services or the Office of Equal Opportunity will reach out to you and offer support, resources, and information. You will be invited to meet with the employee to discuss the situation and the various options available to you.
If you have requested confidentiality, the University will weigh your request that no action be taken against the institution's obligation to provide a safe, nondiscriminatory environment for all students. If the University determines that it can maintain confidentiality, you must understand that the institution's ability to meaningfully investigate the incident and pursue disciplinary action, if warranted, may be limited. There are times when the University may not be able to honor a request for confidentiality because doing so would pose a risk to its ability to provide a safe, nondiscriminatory environment for everyone. If the University determines that it cannot maintain confidentiality, the University will advise you, prior to starting an investigation and, to the extent possible, will share information only with those responsible for handling the institution's response
The University is committed to the well-being of all students and will take steps to protect all involved from retaliation or harm.
If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.**

For *confidential resources off campus*: **Rape Response Services: 1-800-310-0000 or Spruce Run:** 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911**. Or see the Title IX Student Services website for a complete list of services.

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Food and Agriculture

COURSE DESIGNATOR AVS COURSE NUMBER 554 EFFECTIVE SEMESTER Spring 2021

COURSE TITLE DNA Sequencing Analysis Lab

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [ ] New Course
- [x] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [X] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify) _____

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Robert Causey Digitally signed by Robert Causey Date: 2020.09.07 13:30:30 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

College Dean(s)

Christopher Gerbi Digitally signed by Christopher Gerbi Date: 2020.09.08 05:53:22 -04'00'

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Designator and No.: AVS 554 (cross-listed with AVS 454)
Title: DNA Sequencing Analysis Lab
Prerequisites: GRADUATE STANDING (edited by CG 23 Sept to align with syllabus)
Credit Hours: 2
Description: This course will take students from raw DNA sequencing data through quality assurance, through to data interpretation, statistical analysis, and presentation of the results as a mock scientific article. A background in microbiology, microbial ecology, or genetics would be beneficial. No programming or data analysis experience is required. Students who are performing research may bring their own sequencing data to process in class. Students will become familiar with command-line programs and basic computer programming techniques; understand bioinformatics methods such as quality trimming, assembling contigs, sequence alignment, using reference databases, and statistical comparisons; gain hands-on experience in bioinformatic analysis of DNA sequences using the R platform and its packages; primarily, DADA2, phyloseq, vegan, ggplot2; and be able to apply the knowledge gained in class to other sequence types and programs. Graduate students may bring their own data, or some can be provided. AVS 454 and AVS 554 can not both be taken for credit.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

- ☐ Applied Music
- ☐ Clinical
- ☐ Field Experience/Internship
- ☐ Research
- ☐ Studio
- ☒ Laboratory
- ☐ Lecture/Seminar
- ☐ Recitation
- ☐ Independent Study
- ☐ Thesis

Text(s) planned for use:

All texts will be provided as scientific journal articles available online through Brightspace A current list can be found on the course syllabus, but will be updated yearly as needed to reflect up-to-date research. All software used is free and available online.

Course Instructor (include name, position, teaching load):

Dr. Suzanne Ishaq, Assistant Professor, 50% teaching

Reason for new course:

There is a need for courses which introduce students to microbial ecology, especially in the context of human and animal health, and there are currently no courses at UMaine which provide this. Research and industry have lately demonstrated a huge demand for host-associated microbiomes, and this course would prepare students going into the areas of animal or human health practice, health research, biomedical industry, and more. In addition, the Maine-eDNA group and the Maine Center for Genetic in the Environment both generate and encourage genetic research, and more students will have a need for sequencing data analysis skills to conduct their analysis. This course is anticipated to have broad appeal across Food and Agriculture, Microbiology, and Biology, as well as Computer Science/Bioinformatics.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

- (●) No. The department will not request additional resources for this course.
- ( ) Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

There are currently no courses at UMaine which provide this material in this format. However, there are two classes which may present some similar information in a lecture format: BMB 155 — Genome Discovery II: From DNA to Clones and BMB 492/592 Introduction to Bioinformatics. Both course descriptions indicate that an overview of bioinformatics will be given, including some workflows. Drs. John Singer and Benjamin King (Molecular and Biomedical Sciences) have viewed the syllabus for the proposed course and thought it would add to BMB course offerings rather than duplicate them, as the BMB courses focus on RNA (and the proposed course uses DNA). In addition to students in the School of Food and Agriculture (primarily Animal and Veterinary Sciences and Nutrition and Food Sciences), Microbiology, Biology, Computer Science, and Molecular and Biomedical Sciences departments may be affected. While this course does not overlap with anything currently offered in those departments, this course may be of interest to their students. I have consulted with faculty in several departments mentioned to determine student and faculty interest, as well as any overlap in curricula. In particular, Drs. Jean Remsen and Pauline Kenneth (Animal and Veterinary Sciences) and Dr. Jean MacRae (Civil and Environmental Engineering) have both expressed their support for this course, as well as several graduate students in the School of Food and Agriculture. Drs. John Singer and Benjamin King (Molecular and Biomedical Sciences) also expressed support for this course; they have viewed the syllabus for the proposed course and thought it would add to BMB course offerings rather than duplicate them. Dr. King also suggested making this course online accessible (as a video conferencing course), to allow offsite graduate students in Maine and other locations to take the course, such as students in the Graduate School of Biomedical Science and Engineering (GSBSE) program, the GSBSE Bioinformatics Professional Science Master's program, the School of Computing and Information Science Master's program in Data Science. I have previously taught lectures remotely, as well as had students attend remotely, and I think offering this course online would benefit a large number of students. I have also received positive feedback from Mike Kinnison (Maine Center for Genetics in the Environment), who recommended collaborations between the Center, the MaineeDNA group, and the course material.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

This course will be offered annually, starting spring 2021, in the spring semester. This course will not result in overload salary payments.

AVS 454-554: DNA Sequencing Analysis Lab

Dr. Sue Ishaq; sue.ishaq@maine.edu, 207-581-2770, 108 Rogers Hall, office hrs by request

Course time and location: Spring 2021, TBD

Description: This course will take students from raw DNA sequencing data through quality assurance, through to data interpretation, statistical analysis, and presentation of the results as a mock scientific article. A background in microbiology, microbial ecology, or genetics would be beneficial. No programming or data analysis experience is required. Students who are performing research may bring their own sequencing data to process in class. Students will become familiar with command-line programs and basic computer programming techniques; understand bioinformatics methods such as quality trimming, assembling contigs, sequence alignment, using reference databases, and statistical comparisons; gain hands-on experience in bioinformatic analysis of DNA sequences using the R platform and its packages; primarily, DADA2, phyloseq, vegan, ggplot2; and be able to apply the knowledge gained in class to other sequence types and programs. Students may bring their own data, or some can be provided. AVS 454 and 554 cannot both be taken for credit.

Credit Hours: 2
Prerequisites: AVS 254 or BIO 319 or Bio 350 or BMB 280 or WLE 200 or SMS 300, and STS 232 or MAT 215; or graduate student standing
Mode of Instruction: In-person course. Remote connection will automatically be provided each week for off-campus students, but local students may elect to attend remotely at any time.
Time: Synchronous, but lectures are recorded and made available

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Digital Services, Hardware, Software: Brightspace, Zoom

Instructional Material: Reading material is provided as electronic journal articles via Brightspace that reflects current literature in host-associated microbial ecology and data analysis. All software used is free online. Sequence data will be provided; however, students may elect to work on their own data. Accommodations to class format or material available as needed.

Class format: Short lectures followed by guided computer laboratory time. Various outputs from the analysis will be submitted online for assignments. This course requires access to a computer.

Student Learning Objectives:
After completion of the course, students will be able to:

- Use an understanding of bioinformatics methods, such as quality trimming, assembling contigs, sequence alignment, using reference databases, and statistical comparisons, to curate a data processing and analysis

workflow. This may include bioinformatic analysis of DNA sequences, using the R platform and its packages, MEGA, NCBI genome assembly, MG-RAST, etc. (Quantitative Literacy)

- Demonstrate proficiency in taking raw DNA sequence data through quality control steps to interpretation, and summation of the workflow and results into mock scientific journal article manuscripts. (Quantitative Literacy and Writing Intensive)
- Demonstrate scientific writing skills, specific to manuscript preparation, including incorporating instructor and peer-review comments and revisions. Submit multiple drafts and progression the ideas with each draft.
- Demonstrate skills in peer-reviewing manuscripts, including reviewing, editing, and scientific critique. (Writing Intensive)

Attendance policy: Students are expected to attend lectures, but it is understood that life often precludes this and that students may be performing field work or are located off-campus. Students may attend class virtually, through Zoom, which will be offered for each class. Students who will miss a significant number of classes, or who require additional accommodations, may contact me to make alternate arrangements.

- Pregnancy, lactation, and parenting: I am happy to make accommodations for students based on pregnancy, lactation, and parental needs, as well as work with the Office of Equal Opportunities. Maine state and UMaine policy allows students to breastfeed in any space, including in class. If a lactation space is required, please contact E.O. for arrangements.
    - Pregnant on Campus Initiative, pregnancy and parenting resources in Orono https://pregnantoncampus.studentsforlife.org/campus/umaine-orono/
- Food insecure? Need clothes? Check out the Black Bear Exchange's Food Pantry: https://umaine.edu/volunteer/black-bear-exchange/ or Old Town Crossroads Ministry.

Class participation: Students are expected to participate in discussions in class. I strive to create inclusive discussions, but if students still find it challenging to participate please notify me and I will alter the discussion format as needed.

Late Assignments: Assignments will be accepted after the deadline, with a 10% reduction in grade per day. Assignments will not be accepted after the final exam slot for this class.

Classroom policy: Supporting inclusion and community in science is an active process that involves both invitation, and support to ensure that the scientific community is and remains an equitable and inclusive place. Students are expected to conduct themselves in a professional and courteous manner, and to abide by University policies.

Campus Policies: "The University of Maine is an EEO/AA employer, and does not discriminate on the grounds of race, color, religion, sex, sexual orientation, transgender status, gender expression, national origin, citizenship status, age, disability, genetic information or veteran's status in employment, education, and all other programs and activities." Follow the links for more information.

Students Accessibility Services Statement*
Course Schedule Disclaimer*
Observance of Religious Holidays/Events*
Sexual Discrimination Reporting (Long)*
Sexual Discrimination Reporting (Short)*
** **I am a "mandatory reporter".** If you disclose something to me, I am obligated to disclose to the relevant campus Title IX office. This includes information revealed in class assignments.

Academic Honesty Statement*

Grading (out of 100 points): A = 93–100; A– = 90–92; B+ = 87–89; B = 83–86; B– = 80–82; C+ = 77–79; C = 73–76; C- = 70–72; D+ = 67–69; D = 63–66; D- = 60–62; F = 0–59

Grading:

Mini scientific manuscript: 60% (3 drafts x 20% each)	Lab work output will be used to write one scientific manuscript using amplicon sequencing data, which will be submitted with successive revisions 3 times during the semester. We will generate the Methods and Results section in lab, and students will be responsible for generating the Introduction and Discussion sections independently. Students may work collaboratively with up to three students per group, but the manuscript length, depth of information, and quality of the writing should reflect the number of students in the group. Graduate students are expected to present a higher quality of writing, > 15 citations, more nuanced statistical analysis or graphical representation, and more in-depth discussion sections. Specific instructions are provided on Brightspace, and guidelines may be found in the "writing manuscripts" reading. For each successive submission, students will incorporate revisions from instructor and peer review to progress the complexity of the scientific content and the maturity of the writing style. At the end of the semester, students may opt to use their analysis and manuscript and pursue submission in a scientific journal. Not all datasets may be applicable, and the final decision will rest with the student and with the Principal Investigator who owns the data. Submission for review is completely elective and is not considered in the grading of this class in any way.
Peer Review Undergrad: 1 at 20% Graduates: 2 at 10% each	Review another student's manuscript for the amplicon manuscript submission, per instructions in the Peer Reviewing PowerPoint. Graduate students will perform two peer reviews.
Assignments: 20% (4 x at 5% each)	As instructed on Brightspace and in the Lecture schedule

Prior to the first class
Download and install R (the program candy): https://www.r-project.org/ and Rstudio (the fancy wrapper): https://rstudio.com/products/rstudio/download/

- **Suggested Reading (for new R users)**: http://www.r-tutor.com/r-introduction
- **Suggested Reading (for new R users)**: "Basic Info on R" ppt, Ishaq, on Brightspace
- Suggested additional software for viewing/editing files: Sublime 3 text editor: https://www.sublimetext.com/3

After every class
Update/clean up your code, annotate with notes, add to your methods or results section of your manuscript by describing what you did that day.

Lecture schedule (D1x 2H):

Wk	Lec.	Topic and Notes
1 1/20	1	Introduction Lecture: "Intro" to the course. "Data files and quality", intro to batch/workflow files and keeping good notes. Lab: Installing R and packages, keeping good notes and workflow files. Intro to sequencing files and the information provided within (i.e. quality data). Assessing data quality and quality filtering, and whether to use contigs or single read. • **Reading**: rRNA for amplicon sequencing ppt, Ishaq • **Reading**: DNA sequencing technology ppt, Ishaq • **HW:** Continue personalizing your copy of the workflow, including file and folder names. Make sure you have the data files and metadata for your project on your machine. Complete the "filter and trim" step in DADA2 by next class. • **Assignment (5%):** Plagiarism quiz on Brightspace, due by next lab
Amplicon Sequence Analysis (presented as 16S rRNA)		
2 1/27	2	Picking sequence variants or OTUs Lecture: "Picking sequences out of your data". Overview of alignment, genetic distance, clustering and picking OTUs, or the alternative; using sequence variants. Lab: dereplication, learning error rates, and picking SVs in DADA2 • **Reading**: Callahan_2016_DADA2 • **Reading**: Genetic distance ppt, Ishaq
2 2/3	3	Taxonomy, Chimeras and how to slay them Lecture: "Taxonomy, Chimeras and how to slay them". Sequence identification using reference database files, and using those reference databases to identify and remove chimeric sequences Lab: remove chimeras with DADA2 and assign taxonomy (with Silva) • **Reading**: Writing manuscripts ppt, Ishaq • **Suggested Reading:** Balvociute_2017_comparing_taxonomic_databases • **HW**: Complete dereplication, learn error rates, pick SVs, and remove chimeras. Complete assign taxonomy (with species is optional) by next lab
3 2/10	4	Removing biological contaminants Lecture: "Removing contaminants". Revisiting data quality discussion and the wet-lab and dry-lab contaminants you are likely to find in sequencing data • **Lab: If you have negative controls or DNA quantification data:** remove contaminating sequences from data using Dr. Ishaq's code or *decontam*
3 2/10	5	Experimental design and models Lecture: experimental designs, and building your statistical model Lab: Write out research questions, make them specific. Free time to catch up on analysis, re-do, troubleshoot. • **Suggested Reading**: Prosser_2010_need_for_replication
4 2/17	6	Rarefaction, and alpha diversity Lecture: "Alpha diversity", and how to measure it Lab: introduction to phyloseq, removing contamination using sequenced negative controls, prelim assessment, subsampling, and alpha diversity, including graphics generation (line/bar/violin, and correlograms) and stats. • **Reading**: Ch8_species_composition_and_distance
5	7	Comparing changes in taxonomy Lecture and lab: "Delineation of taxonomic change"; general guidelines for displaying taxonomy, as well as DESeq2, forests, LEFSe.

2/24		• **Reading**: Rajendhran_2011_16S_phylogeny_diversity • **Assignment (5%):** Complete the "DIY taxonomic reference database" exercise on creating reference databases using MEGA, due by next class. Instructions on Brightspace.
6 3/3	8	Beta diversity Lecture and Lab: "Beta diversity". Community-level similarity and ordinations, experimental design, building your experimental model. • **Due**: Reference fasta and taxonomy file made in MEGA • **Reading**: Lozupone_2008_measuring_species_diversity
7 3/10	9	Beta diversity Part II Lecture and Lab: "Beta diversity component analysis". more community-level analysis. RDA, CCA, db-RDA, WTF. • **Reading**: Ramette_2007_multivariate_microbial_ecology
8 3/17		*Spring break, no class*
9 3/24	10	Tree building TBD: guest from Maine-eDNA to talk about core and microorganism sequencing Lab: Trees as needed. Free time for additional analysis/writing • **Paper assignment** (20%): 16S analysis manuscript, ~2000 words not including references. Include at least 5 citations. Specific directions on Brightspace. Due next lab 3/31.
Whole-genome sequencing		
10 3/31	11	Whole-genome sequencing Lecture: "Intro whole-genome" and relevant tech. Lab: quality trimming and contig assembly: de novo vs. scaffold based. Identification of SNPs • **Due**: First draft of 16S analysis manuscript. • **Assignment (20%)**: peer review, due next lab 4/7 • **Reading**: Baker_2012_de_novo_genome_assembly
11 4/7	12	Gene identification and genome notation Lecture and lab: "Genome identification and annotation" • **Reading:** Zhulin_2015_databases_review • **Due:** peer review
Metagenomics		
12 4/14	13	Intro to metagenomics and assembly Lecture and lab: quality-filtering. Constructing 10,000 10,000-piece puzzles. • **Reading:** Laurence_2014_contaminants_metagenomics • **Reading:** Keegan_2016_Protocol_MG-RAST_Metagenomics (1st half) • **Due:** whole genome analysis homework • **Paper assignment (20%):** Second draft of amplicon analysis manuscript. Should include revisions, and more citations. Due next lab 4/21.
13 4/21	14	Gene prediction and annotation Lecture and lab: identifying sequences as genes and figuring out what they are. • **Reading:** Keegan_2016_Protocol_MG-RAST_Metagenomics (2nd half) • **Due:** second draft of amplicon manuscript
14 4/28	15	Taxonomy Lecture and lab: assigning taxonomy to thousands of taxa at a time. • **Reading:** Escobar-Zepeda_2018_taxonomy_metagenomics
15	16	Comparative analysis

		Lecture and lab: how do we present the results and pack a lot of info into figures? • **Reading**: Tringe_2005_metagenomics_terrestrial_marine • **Reading**: Hu_2015_metagenomics_bio_heap_leaching • **Paper assignment (20%):** Final draft of amplicon analysis manuscript. Should include revisions, and more citations. Due during finals week, 5/5.
Final 5/5		Final draft of amplicon analysis manuscript due.

Suggested readings on sequencing technology, bioinformatics for sequencing bias:

- Fuller_2009_Challenges_sequencing_by_synthesis
- Goodwin_2016_10yrs_nexgen_seq_tech
- Kozich_2013_developing_Illumina_pipeline
- Dudley_2009_developing_bioinformatics_skills
- Schloss_2011_reducing_sequencing_artifacts_16S

Suggested readings on 16S, whole genome, and metagenomics:

- Martinez-Porchas_2017_how conserved is 16S
- Kim_2011_comparing_16S_variable_regions
- Marston_2013_NGS_viral_RNA_genomes
- Baker_2012_de_novo_genome_assembly
- Ayling_2019_metagenome_assembly_with_short_reads
- Poretsky_2014_16S_vs_metagenomics
- Laurence_2014_contaminants_metagenomics

Suggested readings on microbial species' definition:

- deQueiroz_2005_concept_of_species
- Reeder_2009_rare_biosphere
- Xu_2014_who_or_what
- Robinson_2010_structure_to_function_in_HAM
- Prosser_2007_ecological_theory_microbial_ecology

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT School of Earth and Climate Sciences

COURSE DESIGNATOR ERS COURSE NUMBER 503 EFFECTIVE SEMESTER Sp 21

COURSE TITLE Graduate Research Seminar in Earth and Climate Sciences

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [x] New Course
- [ ] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [ ] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify) _____

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Scott E. Johnson Digitally signed by Scott E. Johnson Date: 2020.09.17 11:24:18 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

Christopher Gerbi Digitally signed by Christopher Gerbi Date: 2020.09.28 11:36:25 -04'00'

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

ERS 503: Graduate Research Seminar in Earth and Climate Sciences
Each week, 1 or 2 students will give a professional presentation on their current thesis or dissertation research. All other students will give feedback on the presentations. The semester will begin with a discussion on "How to Give a Professional Talk or Poster."
Prerequisites: graduate student status
Credit Hours: 1

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music ☐ Clinical ☐ Field Experience/Internship ☐ Research ☐ Studio
☐ Laboratory ☐ Lecture/Seminar ☐ Recitation ☐ Independent Study ☐ Thesis

Text(s) planned for use:

none

Course Instructor (include name, position, teaching load):

Alicia Cruz-Uribe, Assistant Professor, 50 % teaching

Reason for new course:

This course has been taught for many years as a 602 Special Topics seminar. In an attempt to formalize our curriculum, we are attempting to assign course numbers to our special topics courses that are actually offered regularly.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

◉ No. The department will not request additional resources for this course.

◯ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

This will not directly affect any other departments. Occasionally graduate students from the Climate Change Institute have taken the special topics course for credit; this will still be an option with the formalized course number.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

This course will be offered every spring. It will not result in overload salary payments.

ERS 503, Graduate Research Seminar in Earth and Climate Sciences

Course Information

Credit Hours: 1

Location: 100 Bryand Global Sciences Center

Day and Time: Wednesdays, 12-12:50 pm

Course description: Each week, 1 or 2 students will give a professional presentation on their current thesis or dissertation research. All other students will give feedback on the presentations. The semester will begin with a discussion on "How to Give a Professional Talk or Poster."

Prerequisites: graduate student status

Faculty Information

Dr. Alicia Cruz-Uribe, Edward Sturgis Grew Assistant Professor of Petrology and Mineralogy

Phone: 207-581-4494

alicia.cruzuribe@maine.edu

Office: 215 Bryand Global Sciences Center

Office hours: by appointment; please email to schedule an appointment

Instructional Materials and Methods

There is no required reading for this course. The following website is a useful resource for information about the Assertion-Evidence style of designing presentations: https://www.assertion-evidence.com/. This blog post from Nature may also be useful: http://blogs.nature.com/naturejobs/2017/01/11/scientific-presentations-a-cheat-sheet/.

Course Goals:

Prepare graduate students in the Earth and Climate Sciences to communicate scientific ideas and research to a wide variety of audiences, in order to better prepare them for the workforce.

Instructional Objectives:

The primary objective of this course is to develop the oral communication skills of graduate students in Earth and Climate Sciences.

Student Learning Outcomes

Upon successful completion of this course, students will:

- Demonstrate professionalism in presentations and critiques

- Prepare and deliver a scientifically rigorous presentation
- Expand their knowledge of Earth and Climate Science topics, research methodologies, and presentation techniques

Grading and Course Expectations

Each student will give a seminar presentation (20 min, 5 min for questions). All individual presentations will be scheduled on a signup list in the prior semester, or early in the current semester. There are no quizzes or exams.

Grades will be assigned based on the presentation and participation. Student presentations will be evaluated by the instructor as well as by written comments from faculty members in Earth and Climate Science in the audience using a rubric given to students and faculty at the beginning of the semester (see attached rubric at end of syllabus). Participation will be evaluated based on completion of the feedback form (rubric). Students are strongly encouraged to interact with their peers during other presentations in the form of asking questions and giving well reasoned feedback on rubric forms to their peers.

Presentation: 80%

Participation: 20%

Grades will be awarded based on the following scale:

>90 % A, 80–89 % B, 70–79 % C, 60–69 % D, <60 % F

Course Schedule:

ERS503 meets on Wednesdays from 12-1 pm in Room 100 BGSC

Course Policies

Weekly attendance at the seminar is required. Each student is required to give an oral presentation on their research once during the semester. Students are expected to attend all seminars, and actively engage in giving feedback on presentations through the asking of questions and filling out feedback forms for their peers.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University. Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314: https://www.maine.edu/board-of-trustees/policy-manual/section-314/

Students Accessibility Services Statement [This should be customized to include the instructor's name]: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (the instructor of the course) privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

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Sexual Violence Policy:

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination involving members of the campus, your teacher is required to report this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For *confidential resources off campus*: Rape Response Services: 1-800-871-7741 or Partners for Peace: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services.

University of Maine COVID-19 Syllabus Statement

COVID-19 is an infectious disease caused by the coronavirus SARS-CoV-2. The virus is transmitted person-to-person through respiratory droplets that are expelled when breathing, talking, eating, coughing, or sneezing. Additionally, the virus is stable on surfaces and can be transmitted when someone touches a contaminated surface and transfers the virus to their nose or mouth. When someone becomes infected with COVID-19, they may either have no symptoms or symptoms that range from mild to severe and can even be fatal. During this global pandemic, it is imperative that all students, faculty, and staff abide by the safety protocols and guidelines set forth by the University to ensure the safety of our campus. All students are encouraged to make the Black Bear Cares Pact to protect the health of themselves, the health of others, and the College of Our Hearts Always.

Black Bears Care Pact: https://umaine.edu/return/black-bears-care/

Symptom checking: The symptoms of COVID-19 can range from mild to severe, and even people with mild symptoms may transmit the virus to others. Students are encouraged to use the symptom checking app each day before attending class or moving about campus and follow the recommendation prompted within the app. Students should monitor for the following symptoms daily: fever (temperature >100.4°F/38.0°C) or chills, new cough, loss of taste or smell, shortness of breath/difficult breathing, sore throat, diarrhea, nausea, or vomiting, or the onset of new, otherwise unexplained symptoms such as headache, muscle or body aches, fatigue, or congestion/runny nose.

Physical distancing: Students need to make every effort to maintain physical distancing (6 feet or more) indoors and outdoors including within classrooms. The University classrooms and physical spaces have been arranged to maximize physical distancing. Follow the traffic patterns outlined in each building and outdoor space to avoid crowding. If students are in an academic setting (i.e. clinical or lab class) that requires them to reduce physical distancing, they should follow the instructor's guidelines.

Face coverings: Students must wear appropriate face coverings in the classroom. Face coverings must be worn in indoor and outdoor spaces on campus unless people are alone in a room with a door closed or when they are properly physically distanced and do not expect someone to approach them. When face coverings are removed, people are placing themselves and those surrounding them at increased risk for COVID-19.

Eating and drinking in classrooms: Students may not eat or drink in the classrooms and are encouraged to take their food or drink into areas designated for these purposes where they can maintain 6 feet physical distance from others.

Hand hygiene: Proper hand hygiene is an effective measure to prevent the spread of COVID-19. Students should wash their hands often with soap and water or use a hand sanitizer with at least 60% alcohol, especially after using the bathroom, before eating or drinking, and before and after going to class or university spaces such as the recreation center, library, or dining halls.

Contingency plans: Classes will be held in various formats to offer flexibility, compassion, and empathy during these unprecedented times. Under certain circumstances, students or instructors

may need to miss classes or in-person classes may be disrupted. Students are expected to notify their instructor if they are unable to attend an in-person or online class but will not be penalized for missing class due to illness or the need to care for a family member affected by COVID-19. If a disruption occurs, your instructor will provide communication and contingency plans.

What to do if you have or suspect you have COVID-19: If you have symptoms of COVID-19 or have been possibly exposed to someone with COVID-19, you should stay home, not interact with others, and contact your health care provider immediately to be tested for COVID-19. You may not attend in-person classes and should suspend interactions with others until you are tested. Prior to receiving test results, you should quarantine in your living area according to the Maine CDC guidelines below. Please follow the guidance of your health care professional regarding testing, quarantine, and isolation during the testing process and potential illness period.

What to do if someone you know has or may have COVID-19: If someone you know or that you have had close contact with (defined by the ME CDC as 15 mins or more within 6 feet or less) has tested positive for COVID-19, you should stay home and quarantine according to the guidance of the ME CDC, contact your health care provider, and continue to monitor for symptoms. You may be required to quarantine and/or be tested for COVID-19 under these circumstances. You may also have been exposed to COVID-19 by someone you do not know, and it is possible that you could be contacted through contact tracing to determine if you were exposed. Everyone should respond to these confidential questions to ensure the safety of themselves and those around them.

Maine CDC guidelines: https://www.maine.gov/dhhs/mecdc/infectious-disease/epi/airborne/coronavirus/general-information.shtml

If you have questions or would like additional information related to the University of Maine COVID-19-specific policies or procedures, please use the following sources:

University Webpages: umaine.edu/return and together.maine.edu

COVID-19 Information line: 207.581.2681

Emergency Operations Center Email Contact: umaine.alerts@maine.edu

BROWN BAG SEMINAR, School of Earth and Climate Sciences

Name _____ Short Title _____

Evaluator _____ Date _____

Scientific Content	Exemplary	Proficient	Basic	Weak	
Statement of problem (Is this well-stated such that it is a testable scientific question?)	4	3	2	1	
Context & Implications (Is the big picture articulated?)	4	3	2	1	
Methods (Are the methods appropriate to address the scientific question? Are they explained clearly?)	4	3	2	1	NA
Results (Are the results presented clearly?)	4	3	2	1	NA
Discussion (Is the presenter evaluating their scientific question?)	4	3	2	1	NA
Conclusions/Future Work	4	3	2	1	

Comments

Presentation Mechanics	Exemplary	Proficient	Basic	Weak
Presentation organization and flow	4	3	2	1
Visual effectiveness (Layout of slides, Font size and choice, Figures)	4	3	2	1
Appropriateness for audience (Scope, Topic, Level)	4	3	2	1

Comments

Effectiveness of Delivery	Exemplary	Proficient	Basic	Weak
Speaking clarity, volume, and pace	4	3	2	1
Physical presence (Mannerisms, Eye contact, Use of gestures)	4	3	2	1
Appropriateness to the Occasion (Appearance, Presentation Length, Tone, Preparedness)	4	3	2	1

Comments

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Mechanical Engineering

COURSE DESIGNATOR MEE COURSE NUMBER 639 EFFECTIVE SEMESTER Sp 2021

COURSE TITLE Advanced Radiative Heat Transfer

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [x] New Course
- [ ] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [ ] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify)

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Masoud Rais-Rohani Digitally signed by Masoud Rais-Rohani Date: 2020.07.20 09:52:04 -04'00'

College(s) Curriculum Committee Chair(s) (if applicable)

Digitally signed by Mohamd Musavi
DN: cn=Mohamd Musavi, o=University of Maine, ou=College of Engineering, email=musavi@maine.edu, c=US
Date: 2020.09.03 11:20:19 -04'00'

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

MEE 639 Advanced Radiative Heat Transfer
Prerequisites: MEE 125 and MEE 432 or equivalent or permission of instructor.
Credit hours: 3

This course investigates the fundamentals of radiative heat transfer including the blackbody radiation law and radiative properties of real surfaces, radiative heat transfer between surfaces separated by transparent and participating media, radiative exchange in the presence of conduction and convection, the radiative transfer equation and its solution methods, especially the discrete ordinates method.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non graded components:*

- ☐ Applied Music
- ☐ Clinical
- ☐ Field Experience/Internship
- ☐ Research
- ☐ Studio
- ☐ Laboratory
- ☒ Lecture/Seminar
- ☐ Recitation
- ☐ Independent Study
- ☐ Thesis

Text(s) planned for use:

Radiative Heat Transfer, 3rd Edition by Michael Modest

Course Instructor (include name, position, teaching load):

Sheila Edalatpour, Assistant Professor of Mechanical Engineering, 3 courses per year

Reason for new course:

Several graduate students in the Department of Mechanical Engineering do research on radiative heat transfer, as this topic is the primary research area of the faculty members of the department who teach and conduct research in the area of thermal science and engineering. A graduate-level course dedicated to this topic will significantly benefit our graduate students in fulfilling their research projects.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

- ◉ No. The department will not request additional resources for this course.
- ○ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

Other departments/programs are NOT affected.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

The course will be offered every other year.
This course will NOT result in overload salary payments.

THE UNIVERSITY OF MAINE

MEE 639 Advanced Radiative Heat Transfer
Department of Mechanical Engineering
University of Maine
Spring 2021

Instructor:	Prof. Sheila Edalatpour O ce: 203 Boardman Hall Phone: 207-581-2375 Email: sheila.edalatpour@maine.edu
Class Schedule:	TBD
O ce Hours:	TBD
Course Summary:	This course investigates the fundamentals of radiative heat transfer including the blackbody radiation law and radiative properties of real surfaces, radiative heat transfer between surfaces separated by transparent and participating media, radiative exchange in the presence of conduction and convection, the radiative transfer equation and its solution methods, especially the discrete ordinates method.
Prerequisites:	MEE 125 Computational Tools for MEs, or equivalent MEE 432 Heat Transfer Graduate Status 3 credits
Textbook:	Required Text M.F. Modest, Radiative Heat Transfer, 3rd edition, Academic Press, 2013 (ISBN 978-0123869449). Optional Text J.R. Howell, R. Siegel, and M.P. Mengüç, Thermal Radiation Heat Transfer, 5th edition, CRC Press, 2011 (ISBN 978-1-4398-0533-6).
URL for Course:	A Brightspace course website has been established. Syllabus, homework, homework solutions, grades and other useful documentation will be posted to the course website. Announcements regarding the course will also be made through Brightspace. The course website can be accessed through https://courses.maine.edu/
Grading:	Final Composite Score Based on: Mid-term exam 1 25% Mid-term exam 2 25%

Final quiz	10%
Homework	40%
	100 %

Grading Scale:

93 - 100%:	A
90 - 92%:	A-
87 - 89%:	B+
83 - 86%:	B
80 - 82%:	B-
77 - 79%:	C+
73 - 76%:	C
70 - 72%:	C-
67 - 69%:	D+
63 - 66%:	D
60 - 62%:	D-
below 60%:	F

Final grading scale may be lowered by the instructor based on the overall performance of the class, but will not be raised.

Exams:

1. Two mid-term exams and a final quiz are scheduled. The final quiz will be comprehensive, closed-book, and closed-notes.
2. **There is no make-up exam**. If an exam is missed for a valid reason (supporting evidence is required) and with the instructor's consent, the average of the mid-term exams, quiz, and homework will be used for the missed exam. Else, a grade of zero is assigned.

Homework:

1. Homework will be assigned on a bi-weekly basis.
2. Homework will be collected at the start of class on the due date.
3. All homework must be submitted on paper. Electronic submissions are NOT accepted.
4. Late homework WON'T be accepted unless there are extenuating circumstances (i.e., documented illness). Homework solutions will be made available on the Brightspace course website 1 day after the original due date.
5. **Homework assignments include questions whose solutions require computer programming in MATLAB. As such, proficiency in MATLAB programming is required.**

Class Policies:

1. It is your decision whether or not to attend class. If you are absent for any reason, please contact your classmates for any pertinent material. Do not see the instructor for notes and handouts.
2. If you have a University athletic or academic activity or a business engagement, please contact the instructor before you leave to determine appropriate accommodations for the absence.
3. Laptop computers may only be used to take notes. The use of cell phones is strictly prohibited in the classroom.

Course Outcomes:

At the end of this course, the student will:

1. Be knowledgeable of Planck's blackbody distribution (formulation, application and limitation) and Wien's law
2. Understand the concept of solid angle and be able to calculate solid angles
3. Be able to understand the similarities and differences between radiative intensity, radiative heat flux and emissive power
4. Understand surface radiative properties (emissivity, absorptivity, reflectivity) and be able to distinguish and link spectral, total, directional and hemispherical properties
5. Understand the concept of view factor in radiative transfer and be able to calculate these quantities for a variety of geometries via view factor algebra, the cross-strings method and the Monte Carlo method
6. Be able to predict radiation heat transfer between black surfaces separated by transparent media
7. Be able to predict radiation heat transfer between gray, diffuse surfaces separated by transparent media
8. Understand how radiation heat transfer between nongray surfaces can be predicted
9. Understand the phenomena of absorption, emission, in-scattering and out-scattering in participating media
10. Be able to formulate the radiative transfer equation for radiation heat transfer in participating media
11. Understand how radiative heat transfer is coupled with other heat transfer modes via the energy equation
12. Be able to solve analytically the radiative transfer equation for simple cases involving radiative equilibrium of non-scattering and scattering media (exact solutions)
13. Be able to solve analytically the radiative transfer equation in the optically thick limit and via the two-flux approximation
14. Be able to solve computationally the radiative transfer equation in a one-dimensional slab via the discrete ordinates method
15. Understand collimated irradiation and be able to integrate it in the radiative transfer equation
16. Be able to account for transient effects in the radiative transfer equation when dealing with short-pulsed collimated irradiation

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For confidential resources off campus: Rape Response Services: 1.800.310.0000 or Spruce Run: 1.800.863.9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For support services on campus: Office of Sexual Assault & Violence

Prevention: 207.581.1406, Office of Community Standards: 207.581.1409, University of Maine Police: 207.581.4040 or 911. Or see the OSAVP website for a complete list of services.

Topics to be Covered

Topic 1: Fundamentals of Thermal Radiation
- A. Introduction (**Section 1.1**)
- B. Nature of thermal radiation (**Section 1.2**)
- C. Basic laws and blackbody concept (**Sections 1.3 and 1.4**)
- D. Solid angles (**Section 1.5**)
- E. Radiative intensity and radiative heat flux (**Sections 1.6 and 1.7**)
- F. Radiation pressure (**Section 1.8**)
- G. Introduction to radiation characteristics of various media (**Sections 1.10 to 1.14**)

Topic 2: Radiative Properties of Surfaces
- A. Emissivity (**Sections 3.1 and 3.2**)
- B. Absorptivity (**Sections 3.1 and 3.2**)
- C. Reflectivity (**Sections 3.1 and 3.2**)
- D. Real surfaces (**Overview of Sections 3.4 to 3.7, and 3.9**)

Topic 3: View Factors
- A. Definition (**Sections 4.1 to 4.3**)
- B. View factor algebra (**Section 4.6**)
- C. The crossed-strings method (**Section 4.7**)

Topic 4: Radiation Transfer between Surfaces Separated by Transparent (Non-Participating) Media
- A. Radiation transfer between black surfaces (**Sections 5.1 and 5.2**)
- B. Radiation transfer between gray, diffuse surfaces (**Sections 5.3 and 5.4**)
- C. Radiation transfer between nongray surfaces (**Sections 7.1 and 7.2**)
- D. The Monte Carlo method (**Sections 20.1 to 20.6**)

Topic 5: Radiation Transfer in Participating Media
- A. Introduction (**Sections 9.1 and 9.2**)
- B. Attenuation of radiation: absorption and out-scattering (**Section 9.3**)
- C. Augmentation of radiation: emission and in-scattering (**Section 9.4**)
- D. The radiative transfer equation (RTE) (**Sections 9.5 to 9.8**)
- E. Coupling the RTE with the energy equation (**Sections 9.9 to 9.12**)
- F. Overview of solution methods for the RTE (**Section 9.13**)

Topic 6: Exact Solutions of the RTE in One-Dimensional Plane-Parallel Gray Media
- A. Formulation of the problem (**Sections 13.1 and 13.2**)
- B. Radiative equilibrium of a non-scattering medium (**Section 13.3**)
- C. Radiative equilibrium of a scattering medium (**Section 13.4**).

Topic 7: Approximate Solutions of the RTE
- A. The optically thick approximation (**Section 14.2**)
- B. The Schuster-Schwarzschild approximation (**Section 14.3**)
- C. The discrete ordinates method (**Chapter 16**)

Topic 8: Treatment of Collimated Irradiation
- A. Steady-state RTE with collimated irradiation (**Sections 18.1 to 18.3**)
- B. Short-pulsed collimated irradiation and transient effects (**Section 18.4**)

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

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Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Nursing

COURSE DESIGNATOR NUR COURSE NUMBER 526 EFFECTIVE SEMESTER Sp2021

COURSE TITLE Family Nurse Practitioner- Care of Adults 1 (Clinical)

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [x] New Course
- [ ] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [ ] Title Change
- [ ] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [ ] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify) _____

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Kelley Strout Digitally signed by Kelley Strout Date: 2020.04.30 09:06:22 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

College Dean(s)

Christopher Gerbi Digitally signed by Christopher Gerbi Date: 2020.04.30 10:50:11 -04'00'

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

Designator: NUR
Number: 526
Title: Family Nurse Practitioner Care of Adults 1- Clinical
Prerequisites::NUR 503/507/508/520/521, permission
Concurrent: NUR 526
Credit Hours: 2
This course is fourth in a series of five primary health care clinical courses in the Master of Science in Nursing Family Nurse Practitioner program. Emphasis is placed on assessment, evaluation, and management of adult health care problems commonly encountered in rural primary care settings. Attention is given to the complex socioeconomic and cultural issues that impact care of rural populations by the family nurse practitioner. The objective for this clinical is for the student to gain experience in conducting health appraisals and physical examinations, determining differential diagnosis, and developing a treatment plan on actual patients under the supervision of a licensed health care practitioner (MD, DO, CNP, PA). Students will complete a minimum of 150 supervised clinical hours.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

- ☐ Applied Music
- ☒ Clinical
- ☐ Field Experience/Internship
- ☐ Research
- ☐ Studio
- ☐ Laboratory
- ☐ Lecture/Seminar
- ☐ Recitation
- ☐ Independent Study
- ☐ Thesis

Text(s) planned for use:

Goroll, A., & Mulley, A. (2014). Primary care medicine: Office evaluation and management of the adult patient (7th ed.). Philadelphia: Lippincott Williams & Wilkins.

Course Instructor (include name, position, teaching load):

Eva Quirion PhD, FNP
Ms. Quirion is a part-time faculty in the school of nursing. She currently teaches NUR 522 Family Nurse Practitioner Care of Adults 1, which includes the didactic and clinical components. With the course components being separated, her workload will not change.

Reason for new course:

Currently, NUR 522 is a 1-5-variable credit course with didactic and clinical components. The proposal is to separate the components so they have unique numbers. This way, clinical fees can be assessed to help offset the costs of these experiential components. Student overall credit requirements will not change.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

- ◉ No. The department will not request additional resources for this course.
- ○ Yes. Please list additional resources required and note how they will be funded or supported.

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

Annually fall in 2020. This will remain part of the faculty's current workload.

UNIVERSITY OF MAINE
SCHOOL OF NURSING
NUR 526: FNP-Care of Adults 1-Clinical
FALL 2020

Schedule:	Determined in collaboration with preceptor
Pre-requisites/ Concurrent:	**NUR 503, 507, 508, 520, 521, or department permission** **NUR 522**
Credits:	2 (150 supervised clinical hours)
Faculty:	Eva Quirion, PhD, FNP Lecturer, Dunn Hall, Room 240 Cell: 207.944.5595 E-mail: Quirion@maine.edu Office hours by appointment

COURSE DESCRIPTION
This course is fourth in a series of five primary health care clinical courses in the Master of Science in Nursing Family Nurse Practitioner program. Emphasis is placed on assessment, evaluation, and management of adult health care problems commonly encountered in rural primary care settings. Attention is given to the complex socioeconomic and cultural issues that impact care of rural populations by the family nurse practitioner. The objective for this clinical is for the student to gain experience in conducting health appraisals and physical examinations, determining differential diagnosis, and developing a treatment plan on actual patients under the supervision of a licensed health care practitioner (MD, DO, CNP, PA). Students will complete a minimum of 150 supervised clinical hours.

COURSE OBJECTIVES Upon successful completion of the course the learner will:

1. Provide effective patient- and family-centered primary health care to adults giving special attention to the complex socioeconomic and cultural characteristics of rural families and communities.
2. Apply knowledge of theories of adult human behavior, developmental transitions, crises, and family dynamics in client-nurse interactions.
3. Utilize current literature to keep abreast of new developments in health care and to incorporate research findings and expert recommendations into clinical practice as appropriate.
4. Accurately assess and manage the common health problems of adults based on the integration of knowledge related to anatomy, physiology, pathophysiology, and sociocultural aspects of health and illness.
5. Perform and interpret selected screening and diagnostic tests commonly used in primary health care settings.
6. Utilize ethical principles and appropriate therapeutic modalities, both pharmacologic and non-pharmacologic, to promote and restore the health and well-being of adult clients.
7. Incorporate principles of teaching and counseling in client-nurse encounters to assist clients and families to achieve optimum well-being.
8. Differentiate between those clients who may be managed by the family nurse practitioner and those requiring consultation with, or referral to, other health care providers.
9. Accurately document the data base, assessment, and plan of care using the problem-oriented format (SOAP) and the electronic health record.

COURSE FORMAT
Clinical (2 credits): Clinical practice for NP students, minimum 150 precepted hours

COURSE EVALUATION (students must receive a pass in all areas in order to pass the course)

Clinical Reflection Log	Pass/Fail
150 Hours of Precepted Clinical Experience	Pass/Fail
Submission of midterm and final preceptor evaluation	Pass/Fail

Course Grading:
Pass- successful completion of all areas on rubric below; fail- one or more areas on rubric below not successfully completed
Clinical log & summary of clinical experiences are to be submitted weekly via Medatrax. Orientation and use of the platform will be provided the first week of the course. The clinical log for each week is due the Saturday of each week by midnight.

GRADING RUBRIC

	Pass	Fail
Clinical Reflection Log	Submitted on time Reflects upon skills and knowledge gained in providing primary care to adult clients	Not submitted Lack of reflection on skills and knowledge gained
Precepted Clinical Experience	Documentation of a minimum of 150 precepted clinical experience A score of "2" or higher on all areas of the clinical evaluation tool	Less than 150 precepted clinical hours A score of "0" or "1" on any area of the clinical evaluation tool
Submission of midterm and final preceptor evaluation	Submitted as required; signed by preceptor	Not submitted

CLINICAL FOR NP TRACK STUDENTS

Nurse practitioner students are required to complete one hundred and fifty (150) hours of supervised clinical experience in a primary care setting during this course. It is advised that the student spend eleven (11) hours per week for fourteen (14) weeks at the site. The objective for this clinical is for the student to gain experience in providing primary care to adult clients.

The student is expected to make arrangements with a clinical site and have a nurse practitioner, physician, or physician assistant work closely with the student as a preceptor. The preceptor will provide a written evaluation of the student's clinical experience. Additionally, course faculty or designee will conduct at least one site visit to observe the student.

The student must be evaluated as passing in the clinical site by the preceptor and the faculty. This means that the student must not have less than "2" in each area evaluated using the clinical evaluation tool. If the student has performed satisfactorily in the clinical site but has failed the didactic portion, a grade of E will be assigned.

CLINICAL EXPECTATIONS

1. Attendance is mandatory for all clinical assignments. If a student or preceptor must miss a scheduled clinical session, the time must be made up. Arrangements may be negotiated with the clinical preceptor. It is the student's responsibility to notify the clinical preceptor and course instructor if a scheduled clinical session must be missed. Provide as much advance notice as possible to the preceptor and/or clinical agency because the preceptor's clinical schedule is often influenced by the student's presence or absence.

2. Professional appearance is expected in the clinical setting. In addition, the FNP student must conform to the dress code rules of the clinical agency. Professional appearance includes
attire, hairstyle, and jewelry. Attire should be clean, neat, and modest. Closed-toe shoes and stockings should be worn. Perfumed products should be avoided. A clean, pressed lab coat is expected if clinical staff are expected to wear lab coats. Lab coats are an advantage for carrying equipment & clinical references in the pockets, but are not required if it is not the norm of a particular practice. A name badge that clearly identifies you as a RN and as a University of Maine family nurse practitioner student is required. The name badge is to be worn at eye-level (above the waist).

3. It is my plan to visit each student at their clinical site at least once during the semester. The visit will be used to provide clinical instruction and to evaluate the student's clinical progress. Additional visits will be arranged if warranted by problematic clinical performance or other circumstances. If a personal site visit is not feasible, an alternative way to speak directly with the preceptor will be arranged.

4. Each student will evaluate the quality of his/her clinical learning experiences (clinical agency, clinical preceptor(s), and quality and quantity of clinical experiences available at the clinical site). An evaluation form is attached to this syllabus. This evaluation will be given to the course
faculty (not directly to the clinical agency or preceptor). The purpose is to provide feedback to course faculty and the clinical preceptor for planning future student clinical placements.

5. Students are asked to remember that preceptors receive no financial remuneration for this service. Preceptors do this because of a sense of responsibility to the next generation of nurse practitioners. Students who need to be removed from a clinical setting may be in jeopardy of failing the course.

REQUIRED MATERIALS

Goroll, A., & Mulley, A. (2014). *Primary care medicine: Office evaluation and management of the adult patient* (7th ed.). Philadelphia: Lippincott Williams & Wilkins.

*Additional required readings, supplementary resources, and assignment guidelines will be posted on the Blackboard course site.

HIPAA PROTECTED INFORMATION

All forms of class assignments and/or discussion are to be free of any and all information that could potentially lead to the identification of a patient or patient situation. While we recognize the value of dialogue surrounding circumstances that present as unique and perhaps can be seen as relevant for teachable moments, protecting patient information takes precedence. For the purpose of learning and improving care, potentially identifiable information should be masked so that all

parties are protected. Violations of patient confidentiality will be handled by the School of Nursing and according to agency policies wherein the violation has occurred.

Academic Honesty Statement: Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University. Please see the University of Maine System's Academic Integrity Policy listed in the Board Policy Manual as Policy 314: https://www.maine.edu/board-of-trustees/policy-manual/section-314/

Students Accessibility Services Statement [This should be customized to include the instructor's name]: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (Eva Quirion) privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities (due to COVID-19 or other long-term disruptions), the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Observance of Religious Holidays/Events: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

- The student who anticipates the need to be absent to accommodate his or her religious practice **must** notify faculty in advance of such anticipated absence. This notice should be provided at least one week in advance.

- Assignments are required to be completed prior to the class/clinical/lab date. Clinical and lab make up shall be in collaboration with faculty and preceptor.

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any

form of gender discrimination involving members of the campus, your teacher is required to report this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For *confidential resources off campus*: Rape Response Services: 1-800-871-7741 or Partners for Peace: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Course Objective	UMaine SON MSN Program Outcome	AACN MSN Essentials	NONPF NP Core Competencies	Evaluation Method
Apply knowledge of theories of adult human behavior, developmental transitions, crises, and family dynamics in client-nurse interactions.	Evaluate and integrate a wide range of theories from nursing and related disciplines to provide high quality, culturally sensitive, and ethically based patient centered care.	Essentials VIII, IX	Independent Practice Competencies: 3, 4	NP: clinical evaluation tool, SOAP notes
Incorporate principles of teaching and counseling in client-nurse encounters to assist clients and families to achieve optimum well-being. Differentiate between those clients who may be managed by the family nurse practitioner and those requiring consultation with, or referral to, other health care providers.	Partner with professional colleagues and healthcare consumers to promote health and to prevent injury and illness in populations served by the advanced professional nurse.	Essential VIII	Independent Practice Competencies: 3a, 3c	NP: clinical evaluation tool, SOAP notes
Utilize current literature to keep abreast of new developments in health care and to incorporate research findings and expert recommendations into clinical practice as appropriate.	Apply evidence from research and best practice models for the provision of patient centered care and the evaluation of healthcare outcomes.	Essentials I, IV	Scientific Foundation Competencies: 3, 4 Quality Competencies: 1, 2	NP: clinical evaluation tool, SOAP notes
Provide effective patient- and family-centered primary health care to adults giving special attention to the complex socioeconomic and cultural characteristics of	The MSN-FNP graduate will be able to serve as primary health care provider in the promotion of health, prevention of injury and illness, and management of acute and chronic health problems	Essentials III, VIII Essentials I, IV	Independent Practice Competencies: 3c, 3e Independent Practice Competencies: 3a	NP: clinical evaluation tool, SOAP notes

communities.	across a variety of settings. Advocate for improved healthcare delivery and patient/community health outcomes through analysis of social, political and economic contexts.			
Accurately assess and manage the common health problems of adults based on the integration of knowledge related to anatomy, physiology, pathophysiology, and sociocultural aspects of health and illness. Perform and interpret selected screening and diagnostic tests commonly used in primary health care settings.	The MSN-FNP graduate will be able to serve as primary health care provider in the promotion of health, prevention of injury and illness, and management of acute and chronic health problems through the lifespan and across a variety of settings.	Essential IX	Independent Practice Competencies: 3b	NP: clinical evaluation tool, SOAP notes
Accurately document the data base, assessment, and plan of care using the problem-oriented format (SOAP) and the electronic health record.	Demonstrate proficiency in the use of technology and information systems to enhanced knowledge, communicate with the healthcare team, mitigate error, establish differential diagnosis, and to support decision-making for advanced practice.	Essentials V, VII	Technology and Information Literacy Competencies: 2	NP: clinical evaluation tool, SOAP notes
Utilize ethical principles and appropriate	Incorporate ethical principles, legal and regulatory mandates,	Essential II	Ethics Competency: 1, 2, 3	NP: clinical evaluation tool, SOAP notes

therapeutic modalities, both pharmacologic and non-pharmacologic, to promote and restore the health and well-being of adult clients. .	and professional standards in the advanced professional nursing role.			

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Nursing

COURSE DESIGNATOR NUR COURSE NUMBER 522 EFFECTIVE SEMESTER SP2021

COURSE TITLE Family Nurse Practitioner- Care of Adults 1

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- ☐ New Course
- ☐ New Course with Electronic Learning
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☒ Description Change
- ☒ Prerequisite Change
- ☒ Credit Change
- ☐ Cross Listing (must be at least 400-level)[1]
- ☐ Other (specify)

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Kelley Strout Digitally signed by Kelley Strout Date: 2020.04.30 09:07:48 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

College Dean(s)

Christopher Gerbi Digitally signed by Christopher Gerbi Date: 2020.04.30 10:51:03 -04'00'

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 2 (FOR COURSE MODIFICATIONS)

Current catalog description (include designator, number, title, prerequisites, credit hours):

Designator: NUR
Number: 522
Title: Family Nurse Practitioner Care of Adults 1
Credits: Lec 1-3; Clin 1-3
Pre-requisites: NUR 503, 507, 508, 520, and 521; permission
Assessment and primary care management of well adults and adults with common health problems. Emphasis is placed on primary health care of rural and underserved populations.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Designator: NUR
Number: 522
Title: Family Nurse Practitioner- Care of Adults 1
Pre-requisites: NUR 503, 507, 508. 520, and 521; permission
Concurrent: NUR 526
Credit Hours: 3
This course is fourth in a series of five primary health care courses in the Master of Science in Nursing Family Nurse Practitioner program. Emphasis is placed on assessment, evaluation, and management of adult health care problems commonly encountered in rural primary care settings. Attention is given to the complex socioeconomic and cultural issues that impact care of rural populations by the family nurse practitioner.

Reason for course modification:

Currently, NUR 522 is a 1-5-variable credit course with didactic and clinical components. The proposal is to separate the components so they have unique numbers. This way, I clinical fees can be assessed to help offset the costs of these experiential components. Student overall credit requirements will not change.

SECTION 3 FOR COURSE ELIMINATIONS

Reason for Elimination

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

UNIVERSITY OF MAINE
SCHOOL OF NURSING
NUR 522: FAMILY NURSE PRACTITIONER CARE OF ADULTS - I
Fall 2020

Class Schedule:	Synchronous on-campus meetings scheduled on Mondays 3:00-5:50 PM.
Classroom:	Dunn Hall Room 202
Pre-requisites:	**NUR 503/531/532, 507, 508, 520, 521, or department permission**
Concurrent:	**NUR 526**
Credits:	3
Faculty:	Eva Quirion, PhD, FNP Lecturer, Dunn Hall, Room 240 Cell: 207.944.5595 E-mail: Quirion@maine.edu Office hours by appointment

COURSE DESCRIPTION

This course is fourth in a series of five primary health care courses in the Master of Science in Nursing Family Nurse Practitioner program. Emphasis is placed on assessment, evaluation, and management of adult health care problems commonly encountered in rural primary care settings. Attention is given to the complex socioeconomic and cultural issues that impact care of rural populations by the family nurse practitioner.

COURSE OBJECTIVES

Upon successful completion of the course the learner will:

1. Provide effective patient- and family-centered primary health care to adults giving special attention to the complex socioeconomic and cultural characteristics of rural families and communities.
2. Apply knowledge of theories of adult human behavior, developmental transitions, crises, and family dynamics in client-nurse interactions.
3. Utilize current literature to keep abreast of new developments in health care and to incorporate research findings and expert recommendations into clinical practice as appropriate.
4. Accurately assess and manage the common health problems of adults based on the integration of knowledge related to anatomy, physiology, pathophysiology, and sociocultural aspects of health and illness.
5. Perform and interpret selected screening and diagnostic tests commonly used in primary health care settings.
6. Utilize ethical principles and appropriate therapeutic modalities, both pharmacologic and non-pharmacologic, to promote and restore the health and well-being of adult clients.
7. Incorporate principles of teaching and counseling in client-nurse encounters to assist clients and families to achieve optimum well-being.
8. Differentiate between those clients who may be managed by the family nurse practitioner and those requiring consultation with, or referral to, other health care providers.
9. Accurately document the data base, assessment, and plan of care using the problem-oriented format (SOAP) and the electronic health record.

COURSE FORMAT

Didactic: Lecture & discussion; student presentations; written assignments; Audiovisual and computer resources for self-directed learning

COURSE EVALUATION

Grading

Case study (written paper).....20%
Class presentation (case study)..... 5%
Mid-semester examination.....25%
Final examination.....30%
Quiz on skin cancer screening…..…… 5%
Clinical write-ups (6).....10%
Reading level analysis..... 5%

Course Grading:
A= 92-100; A-= 90-91; B+= 88-89; B= 82-87; B-= 80-81; C+= 78-79; C= 75-77; C-= 70-74

Midsemester examination is held during class time. A variety of questioning styles will be used: multiple choice, short answer, case study analysis. The midsemester examination is scheduled for (subject to change to 3/23/20 if needed due to guest lecturer schedule).

Final examination is comprehensive. Content from the entire course will be included using a variety of questioning styles.

Be aware that the School of Nursing Graduate Program Policy stipulates that students must achieve an average of 80% or higher on the two written examinations in order to pass this course. If the exam average is < 80%, the student will be awarded a course grade no higher than "C" which is not a passing grade.

REQUIRED TEXTBOOKS

American Psychological Association (2010). *Publication manual of the American Psychological Association* (6th Ed.). Washington, DC: Author. NUR 522 - Fall 2019 Page 3
Dubin, D. (6th edition). *Rapid interpretation of EKGs.* Valley Stream, NY: Cover Publishing Co.
Goroll, A., & Mulley, A. (2014). *Primary care medicine: Office evaluation and management of the adult patient* (7th ed.). Philadelphia: Lippincott Williams & Wilkins.
Prochaska,J., Norcross, J., & DiClemente, C. (1995). *Changing for good.* Avon Paperback.
Rollnick, S., Miller, W., & Bulter, C. (2008). *Motivational interviewing in health care*. NY: Guilford Press.
Additional required readings will be listed for each class.

COURSE SCHEDULE

Separate attachment

ASSIGNMENT GUIDELINES

1. Case study guidelines

A. Written case study (20% of course grade)
Purpose: The clinical case study allows the learner to retrospectively analyze a particular clinical encounter in depth. Analysis should reflect a variety perspectives on the clinical encounter such as: the epidemiological, medical, and nursing aspects of the clinical visit; the client-nurse interactional aspect of the

encounter; level of health literacy and impact of the health condition on the client, family and community; the ethical and sociocultural aspects of how people define health and illness and make decisions about seeking help; and the public policy/economic/ethical aspect of health care resources (availability, accessibility, affordability, and acceptability of health resources).
The written presentation demonstrates the graduate student's critical thinking, synthesis of previous knowledge and new knowledge, ability to use professional resources to access the current state of the science and standards of practice, and the ability to communicate effectively in professional writing. FNP students are expected to search key sources for current scientific evidence and quality indicators to guide their plan of care (such as the Cochrane Library, the Agency for Healthcare Research & Quality, etc.). The case study will also be presented orally to share information with, and seek insights from, colleagues.

Criteria for grading (paper)

Introduction	
Data Base Health history Objective data	25%
Assessment	20%
Plan of Care	20%
Family, Social, Ethical and Economic Implications	10%
Self-Evaluation of the Healthcare Encounter	10%
Organization of Paper	15%
	100

Detailed Guidelines for Paper
(1) Introductory paragraph
(2) **DATA BASE**..... 25 %
Appropriate for client's age and nature of the presenting problem. Data base may include, but not limited to:
Health history (information provided by whom?)
Demographic data (Use initials or pseudonyms)
Health literacy level and implications for care
History of current concern(s)
Parameters of symptom(s) (to include symptom analysis)
How were symptoms/behaviors managed prior to seeking assistance? Who decided symptoms/behaviors were beyond the scope of self-care (and why)? How was the health care system accessed?
Past health history
Past health problems (acute, chronic, surgeries)
Immunizations
Medications (OTC & prescribed)
Allergies
Personal habits: Nutritional intake, eating & sleeping patterns, exercise, caffeine, tobacco (smoking, chewing), alcohol & other drug use.
Family health history (as appropriate)
Home/living situation of client/family:
Family relationships, gender, ethnicity, & roles (impact on health status)
Home environment: heat, water source, plumbing
Occupation/source of economic support
Review of appropriate systems
Objective data
Physical examination of appropriate systems.

Rationale for selection of systems examined.
Diagnostic and/or screening measures performed at time of visit; rationale for selection.
Diagnostic and/or screening measures requiring referral (if appropriate).

(3) **ASSESSMENT**..... 20 %
Problem list re: Client's current concern(s)
Detected health problems
Age-appropriate health maintenance measures
Differential diagnosis of health problem(s) identified.
Rationale for elimination of differential diagnoses.
Rationale for final assessment of problem.
Rationale supported by current references.

(4) **PLAN OF CARE**..... 20 %
Further diagnostic and/or screening measures to be obtained re: current health problem and/or health maintenance; rationale for above.
Therapeutics selected and rationale: Non-pharmacologic & pharmacologic
Educational/supportive plan
Consultation and/or referral as appropriate
Recommendation for follow-up and evaluation of effectiveness of plan of care.
What available scientific evidence is available to support this plan of care?
What are the ethical implications of this case situation and plan of care?

(5) **FAMILY, SOCIAL, ETHICAL AND ECONOMIC IMPLICATIONS**..... 10 %
"Think family" (from NUR 502). Identify and discuss potential implications of the health problem and plan of care on client, family, and/or community.
What was the estimated cost of this visit (with lab work, tests, medications)?
What was the client's payment method?
How was this visit coded for billing purposes?

(6) **SELF-EVALUATION OF THE HEALTH CARE ENCOUNTER**..... 10 %
Did the care rendered meet the current national/regional standards of quality care for this condition?
Briefly identify and analyze the positive and negative aspects of this nurse-client health care encounter:
Perceived effectiveness of interactions (verbal and nonverbal)
Particular problems and/or pleasures from this encounter.
What would you do differently another time?

(7) **ORGANIZATION OF PAPER**..... 15%
Paper is to be typed with correct grammar, spelling, and punctuation and written in formal, professional language (avoid informal, conversational style or medical jargon in written assignment). Use APA Manual for manuscript guidelines and reference citations. Minimum of six (6) current references (published within last 5 years), excluding required textbook, cited in body of paper. At least 3 of those references must be primary sources of information (research articles, not clinical summary articles). If appropriate to the client's clinical condition, Cinahl, the Cochrane Library (database available via Fogler Library), and/or other reliable sources of current knowledge must be referenced.

Use of the World Wide Web as a source of information: Please use caution in relying on information found on the World Wide Web. If you use a Web site as a reference, be sure that it is not simply one individual's opinion, the opinion of a vested-interest group (pharmaceutical companies, social-political

organizations, etc.), or any other biased sources of information. Cite the Web address correctly, so the reader can access the site and evaluate the validity of the information. For more information, see Georgetown University's guide for evaluating information found on the internet:
Georgetown University: Evaluating Internet Content

PAGE LIMIT (including references): 20 pages.
To ensure that students cover a variety of topics, please inform course faculty of your case study topic/issue prior to preparing paper and oral presentation.

PAPER DUE: MONDAY DECEMBER 7, 2020
Students are welcome to submit papers prior to the due date for faculty review and comments (allow 1-2 week turn-around time).

B. Oral presentation of case study (5% of course grade)
- Because of time constraints, please limit your class presentation to 2-3 aspects of the case study. Choose the aspect(s) that was most interesting, most practical, most puzzling, or otherwise important for nurse practitioner graduate students.
- Develop & distribute reference list and/or other notes for students and faculty for their own reference files.
- Time limit: to be determined by class size

*2. **Midsemester examination**:* (25% of course grade)
The midsemester examination is held during class time. Midsemester exam is scheduled for **Monday October 26, 2020.** A variety of questioning styles will be used: multiple choice, short answer, case study analysis. A clinical conference will be held after completion of the midsemester examination.

3. ***Final Examination***: **Week of December 14, 2020** (30% of course grade)
The final examination is comprehensive; content from the entire course will be included using a variety of questioning styles.

4. ***Quiz on skin cancer screening***: **due November 30, 2020** (5% of course grade)
A self-study module on skin cancer screening will be available on Blackboard. After completing the module, each student will take an online quiz to demonstrate comprehension of the material.

5. ***Clinical write-ups*** (10% of course grade)
Submit **SIX (6)** clinical notes over the semester with a brief self-critique of the visit (process & content) and of the documentation (thoroughness, organization, & medical-legal aspects). Include the evidence-based resources that you utilized in your care and reasoning for choosing those specific resources.
Respond to these questions:
(1) does this note provide your colleagues with clear information for a follow-up visit?
(2) will this note hold up to the scrutiny of a prosecuting attorney in 5 years? (does your note clearly indicate that you upheld the regional/national standard of practice at the time that care was rendered?)
(3) will this note hold up to a Medicare/Medicaid/insurance audit? Include the post-visit ICD codes(s), CPT code(s) for any procedures, and E & M code (5-digit code which indicates level of care rendered).
(4) what is at least ONE significant lesson learned from this visit?
(5) what gave you some satisfaction/joy/inspiration in this visit?
(6) what challenges were posed by this visit?
Additional insights from the visit may be included (for instance, the way in which care is influenced by finances, time, other circumstances). The self-critique may be written on the back of the note or on a separate page.

The client's name, ID number, or other identifying information must be removed or blocked out to preserve confidentiality. Clinical notes should include a variety of visits including acute and chronic health problems and well-adult visits.
Grading: +/- grading system will be used. Steady improvement in documentation is expected over the semester. Additional clinical notes will be required until satisfactory skill is demonstrated.
Due date: Clinical write-ups should be submitted on a regular basis (approximately once/weekly) to permit feedback and improvement over the semester. At least three are due by November 2.
and the remaining three must be in by November 30th.

6. ***Self-Study module on Health Literacy and reading level analysis*** (5% of course grade)
After reading the **self-study health literacy** module:
(a) perform a reading level analysis on a piece of printed patient education material, and
(b) write a brief paper (1-2 pages, double spaced) which discusses the merits and/or drawbacks of using that piece of patient literature in the clinical setting. Hand in the patient education literature with your analysis on it. **Due date: December 7, 2020**

CLASS PARTICIPATION
Students are expected to attend all class sessions and to be prepared to discuss the assigned readings and selected topics. Class sessions are a valuable time to exchange ideas and information, to develop the ability to clearly articulate information from the literature and from clinical experience, and to raise questions. Graduate students are viewed as: (a) self-directed adult learners, actively seeking new knowledge from a variety of sources, (b) professional nurses who strive for excellence in their clinical practice and educational development, and (c) adults with diverse life-experiences and perspectives who convey respect for others' diverse perspectives. Faculty are facilitators of students' learning and are also committed to their own lifelong learning.

If a student must miss a class session, it is the student's responsibility to arrange other ways of obtaining the information covered in class (i.e. having another student tape record the session for you if the presenter gives permission). If a student misses more than two sessions, faculty must be consulted regarding the feasibility of the student continuing the course.

HIPAA PROTECTED INFORMATION
All forms of class assignments and/or discussion are to be free of any and all information that could potentially lead to the identification of a patient or patient situation. While we recognize the value of dialogue surrounding circumstances that present as unique and perhaps can be seen as relevant for teachable moments, protecting patient information takes precedence. For the purpose of learning and improving care, potentially identifiable information should be masked so that all parties are protected. Violations of patient confidentiality will be handled by the School of Nursing and according to agency policies wherein the violation has occurred.

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Students Accessibility Services Statement [This should be customized to include the instructor's name]: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me (Eva Quirion) privately as soon as possible.

Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

Observance of Religious Holidays/Events: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

- The student who anticipates the need to be absent to accommodate his or her religious practice **must** notify faculty in advance of such anticipated absence. This notice should be provided at least one week in advance.

- Assignments are required to be completed prior to the class/clinical/lab date. Clinical and lab make up shall be in collaboration with faculty and preceptor.

Sexual Discrimination Reporting

The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell a teacher about an experience of **sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct or any form of gender discrimination** involving members of the campus, **your teacher is required to report** this information to Title IX Student Services or the Office of Equal Opportunity.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: **Counseling Center: 207-581-1392** or **Cutler Health Center: at 207-581-4000**.

For *confidential resources off campus*: **Rape Response Services:** 1-800-871-7741 or **Partners for Peace**: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: **Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911**. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

NUR 522 Family Nurse Practitioner Care of Adults, Part I
Fall 2020 -- CLASS SCHEDULE
Mondays 3:00-6:00 PM

Date	Topic & Speaker	Readings	Learning Activities Additional Resoursces Assignment Due Dates
Week 1 Monday August 31	Introductions, syllabus, assignments, clinical expectations, how to get the most out of your clinical education, refining clinical judgment & decision-making, medical record documentation (charting, dictating, EMR, etc).	*Primary care medicine*: Chap 1 (pg. 1-6). Review your NUR 503 textbook chapter(s) on: *Bickley, L., Bates guide to physical examination and history taking. Chapter 2: "Clinical* Reasoning, Assessment, and Recording your Findings." **Or** equivalent chapters from the NUR 503 Advanced Health Assessment textbook. Read attached position statements from AANP on primary care and scope of practice	
September is: National Cholesterol Education Month see: *CDC National Cholesterol Education Month* National Prostate Cancer Awareness Month, National Ovarian Cancer Month, & Gynecologic Cancer Awareness Month: See the National Cancer Institute and the American Cancer Society			
No class Monday September 7 Labor Day			

Week 2 Monday September 14	Overview of epidemiology concepts for primary health care, clinical practice guidelines; application of epidemiology concepts to cancer screening for adults; routine screening for additional conditions in adulthood (evidence-based). *Choosing Wisely* national initiative.	*Primary care medicine*: Chap 2, 3, 4, 5 (pg. 7-22). *Primary care medicine*: Review epidemiology, risk factors, and screening for cancers described in Chap.37, 55, 56, 94, 126, 128 [review 106, 107, 108, 109]. Websites: Review for discussion American Cancer Society (2019) *Cancer facts & figures:* https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2019/cancer-facts-and-figures-2019.pdf Center for Disease Control and Prevention (2019) *Preventive care for adults:* https://www.cdc.gov/prevention/index.html	√ CDC data on the 10 leading causes of death in the U.S. (WISQARS web site) https://www.cdc.gov/injury/wisqars/LeadingCauses.html Nat'l Cancer Institute: www.cancer.gov American Cancer Society: www.cancer.org We will utilize case studies to explore the above concepts and apply content within your growing framework of clinical practice
Week 3 Monday September 21	Promoting behavioral changes; Transtheoretical model of behavioral change; motivational interviewing. Application to smoking cessation.	*Primary care medicine*: Chp 54. O'Connor, E, Perdue, L. & Senger, C. (2018). *Screening and behavioral counseling interventions to reduce unhealthy alcohol use in adolescents and adults* https://jamanetwork-com.prxy4.ursus.maine.edu/journals/jama/fullarticle/2714536	CDC Tobacco information & prevention source: www.cdc.gov/tobacco Complete the module: *Motivational interviewing- Applying CDC's Guideline for Prescribing Opioids:* https://www.cdc.gov/drugoverdose/training/motivational-interviewing/ (Pertains to this week's topic and also chronic pain)

			Review CDC's Preventing Chronic Disease: *The eHealth Behavior Management Model: A Stage-based Approach to Behavior Change and Management* https://www.cdc.gov/pcd/issues/2004/oct/04_0070.htm (We will discuss application of various models within primary care
Week 4 Monday September 28	Primary care screening, management, & prevention of hypertension & dyslipidemias	*Primary care medicine*: Chp 14, 15, 18, 19, 26, 27, 32. 2017 Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines: 2017 HTN Guidelines Made Simple.pdf 2018 Guideline on the Management of Blood Cholesterol, Guidelines made simple, Updated June 2019. https://www.acc.org/~/media/Non-Clinical/Files-PDFs-Excel-MS-Word-etc/Guidelines/2018/Guidelines-Made-Simple-Tool-2018-Cholesterol.pdf	Explore the American College of Cardiology (ACC) website ACC/AHA vs. ESC/ESH on hypertension guidelines: JACC guideline comparison. (2019). Journal of Ameican College of Cardiology, 73: 3018-3026. https://www.acc.org/latest-in-cardiology/ten-points-to-remember/2019/06/10/14/22/acc-aha-versus-esc-esh-on-hypertension-guidelines 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease. file:///C:/Users/eileen.owenwilliams/Downloads/j.jacc.2019.03.010.full.pdf Journal of the American College of Cardiology: Guidelines and Clinical Documents (Review the site and download guidelines for your review and practice.

			Download the ASCVD Risk Estimator Plus app) http://www.onlinejacc.org/guidelines
Week 5 Monday October 5	Evaluation of acute respiratory symptoms; upper respiratory infections and community acquired pneumonia in adults.	*Primary care medicine*: Chapters 41, 50, 52 (review 38 and 49 on TB) Review the IDSA guidelines: Group A Streptococcal pharyngitis, Acute Bacterial Rhinosinusitis in Children and Adults, Seasonal Influenza	
October is: Breast Cancer Awareness Month (www.nci.nih.gov; www.cancer.org) & Domestic Violence Awareness Month: and National Cholesterol Awareness Month National Cholesterol			
Fall Break October 12 & 13 No Class			
Week 6 Monday October 19	Overview of the complete blood count, evaluation of anemia & red cell abnormalities in adults, chemistry panels and introduction to chest X-rays. Mental health conditions in Primary Care: Depression and Anxiety	Primary care medicine: Diagnostic testing : Chp 77, 78, 79, 80, 82 , Review Chapter 37 Review your basic lab book regarding chemistry panels Mental health: Chp. 226, 227, 228, 229, 230, 23	
Week 7 Monday October 26	9:00 – 11:00 AM Mid-semester exam in class	Please plan to reconvene for clinical discussion, documentation tips	

Week 8 Monday November 2	*Lynn Bolduc, MS, RD, CDE* *Surgical Weight Loss* *Program of EMMC, Bangor* *Doug Cravens, MN, FNP* *Palliative Care* *Northern Lights*	*Primary care medicine*: Chp 10 & 233 Alegria, C.A., & Larsen, B. (2015). "That's who I am: A fat person in a thin body:" Weight loss, negative self-evaluation, and mitigating strategies following weight loss surgery. *JAANP, 27*(3), 137-144. Budd, G., & Peterson, J. (2014-15) The obesity epidemic, *American Journal of Nursing*. Part 1: Dec. 2014, v 114(12), 40-46. Part 2: Jan. 2015, v115(1), 38-46. Casazza, K., et al. (2013). Myths, presumptions & facts about obesity. *NEJM, 368*(5), 446-454. DeMaria, E. (2007). Bariatric surgery for morbid obesity. *NEJM, 356*(21), 2176-2183. (good diagrams) Teixeira, M., & Budd, G. (2010). Obesity stigma: A newly recognized barrier to comprehensive and effective type 2 diabetes management. *JAANP, 10*, 527-33. Readings TBA	*C* Overweight & obesity resources: www.cdc.gov/nccdphp/dnpa/obesity *At least 3 clinical write-ups with self-critique should be handed in by now*

November is: *National Nurse Practitioner Week is November 10-16, 2019* (see American Association of Nurse Practitioners' website: https://www.aanp.org) *American Diabetes Month* www.cdc.gov/diabetes www.diabetes.org , www.niddk.nih.gov ; Lung Cancer Awareness Month; *National Alzheimer's Disease Awareness Month* www.alz.org			
Week 9 Monday November 9	Assessment, primary care management, & prevention of complications of diabetes in adults Sheryl Sparlin, FNP-C	*Primary care medicine*: Chp 93, 102. Nathan, D. (2002). Initial management of glycemia in type 2 diabetes mellitus. NEJM 347: 1342-49. (Old article, but excellent explanation of the urgency to treat DMT2 and achieve glycemic control). Ducet, L., Phillipson, L., & Anderson B. (204). The mental health comorbidities of diabetes, *JAMA Online* (7/10/14). *American Diabetes Association 2018 Standards of Medical Care in Diabetes* series of articles/guidelines.	Explore the public/patient education topics available on these websites: ▪ American Diabetes Association: http://www.diabetes.org/ ▪ Joslin Diabetes Center: www.joslin.org ▪ Nat'l Institute of Diabetes & Digestive & Kidney Disorders: http://www.niddk.nih.gov/Pages/default.aspx ▪ CDC: www.cdc.gov/diabetes ▪ National Diabetes Education Program: www.ndep.nih.gov Prevent Diabetes STAT (Screen-Test-Act Today) educational program & toolkit from the CDC & AMA on "prediabetes" DMT2: https://preventdiabetesstat.org/ ▪ Maine Quality Counts webinar on STAT program 6.28.18: Dr. Noah Nesin STAT
Week 10 Monday November 16	Evaluation & management of fatigue & thyroid disorders Evaluation of headaches in primary care	Primary Care Medicine: Chp 46, 223, 232. ▪ Buysse, D. (2013). Insomnia (case study). *JAMA, 309*(7), 706-716. ▪ Ramar, K., & Olson, E. (2013). Management of common sleep disorders. *AFP, 88*(4), 231-238. Primary Care Medicine: Chp 94, 95, 103, 104.	Natl Headache Foundation: www.headache.org

		▪ Gaitonde, D., Rowley, K. & Sweeney, L. (2012). Hypothyroidism: An update. *AFP, 86*(3), 244-251.	
Week 11 Monday November 23	Evaluation of the patient with chest pain and EKG interpretation	*Primary care medicine*: Chp 20 McConaghy, J., & Oza, R. (2013). Outpatient diagnosis of acute chest pain in adults. *AFP, 87*(3), 177-182. Reamy, B., Williams, P., & Odom, M. (2017). Pleuritic chest pain: Sorting through the differential diagnosis. *AFP, 96*(5), 306-312. Wilbur, J., & Shian, B. (2012). Diagnosis of deep venous thrombosis and pulmonary embolus. *AFP, 86*(10), 913-919. Zitkus, B. (2010). Take chest pain to heart. *NP Journal, 35*(9), 41-47. Primary care medicine: Chp 36 Dubin Rapid Interpretation of EKGs Additional readings will be provided by the guest speaker	
Week 12 Monday November 30	Evaluation & management of chronic pain in adults, Maine Law Chapter 488, the Maine PMP, opioid & benzodiazepine prescribing and tapering. Eva Quirion, PhD, FNP St. Joseph Internal Medicine	Readings TBA. Maine Quality Counts has numerous open-use resources & webinars for clinicians regarding opioid prescribing, tapering, etc. https://mainequalitycounts.org/what-we-do/population-health/chronic-pain-and-controlled-medication-playbook/ Managing pain without overusing opioids: Implementing safe, effective, and less risky	*Skin cancer screening exam is due by November 30, 2020* *Reading analysis of patient education literature health literacy is due 12-07-2020* *All remaining clinical write-ups should be in by now*

		analgesic strategies (2016). Independent Drug Information Service. IDIS managing pain Maine law, Chapter 488: https://www.mainemed.com/opioid-bill-c488	
December 1st is World AIDS Day https://www.aids.gov/news-and-events/awareness-days/world-aids-day/			
Week 13 Monday December 7	***CASE STUDY Presentations***		*Written case study is due.*
Finals week December 14	Final exam Course evaluation		

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Spatial Informatics, SCIS

COURSE DESIGNATOR SIE COURSE NUMBER 503 EFFECTIVE SEMESTER Spring 2021

COURSE TITLE Principles of Experimental Design

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- [ ] New Course
- [ ] New Course with Electronic Learning
- [ ] Experimental

MODIFICATION (Check all that apply and complete Section 2):

- [ ] Designator Change
- [ ] Number Change
- [x] Title Change
- [x] Description Change
- [ ] Prerequisite Change
- [ ] Credit Change
- [ ] Cross Listing (must be at least 400-level)[1]
- [ ] Other (specify) _____

ELIMINATION:

- [ ] Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Penny Rheingans 9-15-2020

College(s) Curriculum Committee Chair(s) (if applicable)

9/15/2020

College Dean(s)

Graduate School (sign and date)

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 2 (FOR COURSE MODIFICATIONS)

Current catalog description (include designator, number, title, prerequisites, credit hours):

Designator: Dr. Nicholas Giudice
Number: 503
Title: Principles of Experimental Design
Prerequisites: SIE 501 or Instructor permission
Credit Hours: 1
Description: This is an interdisciplinary course designed primarily for first year graduate students and advanced undergraduates who plan to engage in scientific research. The course covers topics in: (1) design of experiments, (2) modern experimental techniques and instrumentation, and (3) data collection, organization, and statistical analysis techniques.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Designator: Dr. Nicholas Giudice
Number: 503
Title: Experimental design research for Human-centered computing
Prerequisites: SIE 501 or Instructor permission
Credit Hours: 1
Description: This is an interdisciplinary course designed for early graduate students and advanced undergraduates interested in the growing field of scientific research combining humans and technology. The course covers topics in: (1) design of human-centered experiments, (2) modern experimental techniques and instrumentation, and (3) basic data collection, organization, and statistical analysis techniques.

Reason for course modification:

I propose a few updates to my course to (1) make it more interesting to a broader array of folks in different disciplines and (2) help make it more applicable to distance students (as I start to make them amenable to online delivery).

SECTION 3 FOR COURSE ELIMINATIONS

Reason for Elimination

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Spatial Informatics, SCIS

COURSE DESIGNATOR SIE COURSE NUMBER 516 EFFECTIVE SEMESTER Spring 2021

COURSE TITLE Virtual Reality: Research and Applications

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- ☐ New Course
- ☐ New Course with Electronic Learning
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☒ Title Change
- ☒ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level)[1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Penny Rheingans Digitally signed by Penny Rheingans DN: cn=Penny Rheingans, o, ou, email=penny.rheingans@maine.edu, c=US Date: 2020.09.10 12:57:45 -04'00' 9-15-2020

College(s) Curriculum Committee Chair(s) [If applicable]

9/15/2020

College Dean(s)

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 2 (FOR COURSE MODIFICATIONS)

Current catalog description (include designator, number, title, prerequisites, credit hours):

Designator: Dr. Nicholas Giudice
Number: SIE 516
Title: Virtual Reality: Research and Applications
Prerequisites: Programming experience and graduate standing or instructor permission
Credit Hours: 3
Description: This course is designed to provide students with an overview of the basic principles of virtual reality (VR) and virtual environment technology (VET). The goal is to learn enough about the strengths and limitations of VR technology in order to be able to construct simple immersive environments as well as to understand the human factors and cognitive issues that should be considered when using this medium.

Proposed catalog description (include designator, number, title, prerequisites, credit hours):

Designator: Dr. Nicholas Giudice
Number: SIE 516
Title: Interactive Technologies for Solving Real-World Problems
Prerequisites: Programming experience and graduate standing or instructor permission
Credit Hours: 3
Description: This course is designed to provide students with an overview of the basic principles of interactive design and immersive technology (virtual, augmented, mixed, and extended reality). The goal is to learn enough about the strengths and limitations of this technology, and the associated human factors, to design simple prototypes aimed at solving real-world problems.

Reason for course modification:

I propose a few updates to my course to (1) make it more interesting to a broader array of folks in different disciplines and (2) help make it more applicable to distance students (as I start to make them amenable to online delivery).

SECTION 3 FOR COURSE ELIMINATIONS

Reason for Elimination

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Anthropology

COURSE DESIGNATOR ANT COURSE NUMBER 521 EFFECTIVE SEMESTER Fall 2020

COURSE TITLE Geographic Information Systems I

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- ☐ New Course
- ■ New Course with Electronic Learning
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level)[1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Gregory Zaro Digitally signed by Gregory Zaro Date: 2020.04.30 13:54:13 -04'00'

College(s) Curriculum Committee Chair(s) [if applicable]

College Dean(s)

10 Aug 2020

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

ANT 521 Geographic Information Systems I
Students will build an understanding of the fundamentals of a GIS through lecture, readings, and computer activities. Students will learn to use a specific GIS software system, ArcGIS, and to define and complete a simple GIS project using existing data. This computer-intensive course includes a detailed discussion and related computer activities on the following topics: basic geography and map concepts, what a GIS is, data sources, data quality, databases, data classification, vector and raster data, spatial analysis, project management, cartographic communication, projections, datums, coordinates, and ethics. Prerequisites: None. 3 credits.

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
☒ Laboratory	☐ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

- How to Lie with Maps. (2018), 3ed. by Mark Monmonier; Univ. of Chicago
- Essentials of Geographic Information Systems by Jonathan Campbell and Michael Shin, 2011 ISBN 13: 978-1-4533219-6-6; Saylor Foundation https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=67
- Esri Academy training modules https://www.esri.com/training/
- Additional readings, as assigned

Course Instructor (include name, position, teaching load):

Tora Johnson, UM SFR Cooperating Graduate Faculty & UM-Machias Associate Professor of GIS

Reason for new course:

This listing will allow UM graduate students additional graduate options for adding GIS to their course of study. Currently, several graduate students per year take UMM GIS courses through awkward arrangements between the two campuses. Listing this course through the UM Graduate School would streamline this process and allow greater oversight from SFR, ANT, and Graduate School.

Note: Students may take EITHER ANT 521 GIS I OR SFR400 for credit, not both.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

○ No. The department will not request additional resources for this course.

◉ Yes. Please list additional resources required and note how they will be funded or supported.

Students will require access to the Nutting GIS laboratory used by the co-listed UMM GIS 300 course

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

Currently, the only introductory GIS courses available at UM at the graduate level are SIE 509 Principles of Geographic Information Systems and INT 527 Integration of GIS and Remote Sensing in Natural Resources Applications. These courses do not meet the needs of many graduate students at UM, particularly those in the social sciences. Programs that require additional curriculum include marine science and policy, survey engineering, economics, social sciences, anthropology, geography, history.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

This course will be dual-listed with GIS 300 and offered every semester.

Syllabus for ANT 521: GIS Applications 1
UM-Machias GIS Service Center Director/ UM SFR Cooperating Graduate Faculty
Faculty Office: UMM Science 107A ~ UMM GIS Lab Office: Torrey 223
Office Hours: TBA or by appointment
Phone: (207) 255-1214 (office)/ 266-2268 (cell)
Email: tjohnson@maine.edu or tora@svbetsy.com

Office Hours (SUBJECT TO CHANGE), visit this page for current office hours schedule.
YOU MAY RESERVE TIMES TO MEET DURING OFFICE HOURS IN PERSON, BY PHONE, OR ONLINE AT http://bit.ly/toraofficehours. If you are meeting via Zoom, check your email at your meeting time or simply log onto https://maine.zoom.us/j/2072551214. You may use audio via your computer microphone and speakers or via telephone: US: +1 646 876 9923 or +1 669 900 6833 or +1 408 638 0968 (in Canada: +1 647 558 0588). Meeting ID: 207 255 1214

1. Class Meetings:

On-campus Sections:
Lectures: TBA / Labs: TBA

Blended Sections:
Lectures: You may "attend" the live classes via the Internet or watch the recorded lectures at your convenience click the link on the course homepage to join the Zoom session.
Labs: Complete exercises on your own.

Blended Sections are also **REQUIRED** to attend three Saturday Sessions from 9am to 5pm (we usually get out earlier):

First Lab Meeting: UM in Orono, Nutting 254: TBA

Second Lab Meeting: UM in Orono: TBA

Third Lab Meeting: UM in Orono: TBA

IMPORTANT: All GIS 1 students are required to use the course website for assignments, quizzes, discussion forums, grades and streaming lectures. We WILL NOT be using Blackboard.

2. Prerequisites: There are no prerequisite courses; however, students should have a working knowledge of Microsoft Windows. Experience with spreadsheets, elementary algebra, and general knowledge of descriptive statistics are helpful. Students will be expected to spend a significant amount of time in the lab or on their own computers to complete lab activities and manage independent projects.

Students of all sections must either do course work in the UMM GIS laboratory, the UM Wheatland Laboratory, or own or have access to a computer that meets the minimum system requirements for ArcGIS software (including ArcGIS Pro and ArcMap): https://desktop.arcgis.com/en/arcmap/latest/get-started/setup/arcgis-desktop-system-requirements.htm. We will provide software for free.

Blended section students must have or have access to a broadband internet connection for watching lectures and downloading and uploading data for assignments. A webcam and microphone is recommended but not required.

3. Course Description: Students will build an understanding of the fundamentals of a GIS through lecture, readings, and computer activities. Students will learn to use a specific GIS software system, ArcGIS, and to define and complete a simple GIS project using existing data. This computer-intensive course includes a detailed discussion and related computer activities on the following topics: basic geography and map concepts, what a GIS is, data sources, data quality, databases, data classification, vector and raster data, spatial analysis, project management, cartographic communication, projections, datums, coordinates, and ethics. 3 credits.

NOTE: Requirements for the graduate section of GIS I are different from those for the undergraduate section. The differences are as follows:

- ANT 521 includes a literature review assignment.
- ANT 521 students are required to do a paper for their final project; the undergraduate section requires a poster or a lesson plan.
- Rubrics for ANT 521 projects (but not problem sets or labs) are different, placing greater weight on written work.
- ANT 521 students are expected to do projects related to their thesis or dissertation work.

4. Learning Outcomes

- Ability to read maps, constructively critique their cartographic design, and evaluate how they communicate information
- Ability to make maps that effectively communicate information
- Proficiency in entry- to intermediate-level use of ArcGIS software
- Ability to recognize relevant elements of a "client's" needs, translate them into GIS data models and analytical processes, and use GIS software and methods to produce maps and/or information to address those needs
- Ability to design a cartographic model, use vector-based spatial analysis to execute that model, and use both spatial and non-spatial media to communicate methods and results
- Intermediate understanding of projections, coordinate systems and georeferencing
- Familiarity with the breadth and depth of applications of GIS technologies
- Familiarity with relevant principles of cartography, information science, geography, and design

4. Methodology: This course relies heavily upon learning ArcGIS software—the industry standard—along with other commonly-used applications and applying them to geographic problems. To this end, the course includes lab exercises, lectures, activities, assignments, and discussions intended to provide students with the knowledge, skills, and perspectives they need to understand and use GIS technology.

5. Activities and Assignments: Late assignments, without PRIOR arrangement with the instructor, will receive a reduced grade.

- Lab Assignments: There will be weekly lab exercises on the Esri website. You will be required to hand in on Google Drive a certificate for each.
- Occasional Quizzes: There will be short, occasional quizzes on the course website.
- Problem Sets: There will be three or four assignments that allow students to practice and apply the course concepts and skills. The problem sets may include map-making exercises, written responses and/or discussion in the online forum. Assignments must be submitted via Google Classroom to receive full credit.
- Literature Review: Integrated review of literature relevant to final project work.

- Final Project: Each student will be responsible for identifying and completing a service-learning final project applying the course concepts and skills to a problem of interest. To accomplish this, students must find a "client" (a faculty member or local organization or business) who has a need that can be addressed with GIS, translate that need into a specific GIS project, construct a cartographic model, and use that model to guide the data collection and analyses necessary to create an effective and professional map-based product (hard copy and digital). In addition to maps, the project will include thorough documentation of the process and relevant background.
- Final Project Presentation: Each student will create a 10 minute presentation of their final project and deliver that presentation in an on-campus class at the end of the semester.

6. Attendance and Class Participation Policy:

All students will be required to enter an attendance code on Google Classroom for each lecture.

On-Campus Students: Attendance in live, on-campus classes is required. However, if you miss a class, you may watch the recording as a partial make-up. If you need to be away from campus, you may attend the course via Zoom using the link on the course website homepage.

Blended Section Students: Lectures are available in real time or streamed at the student's convenience. A link to live lectures is on the homepage of the course website. Recorded lectures will be available on the course website on the content page for that week.

You should plan to log into the course website at least three to four times per week, and the three Saturday sessions are ***required***.

Participation: In addition to participation in the lectures, labs and/or Saturday sessions, students are expected to contribute to class discussions on Google Classroom for some problem sets over the course of the semester.

7. Evaluation: Grades will be calculated as follows:

a) Attendance & Participation (10%)
b) Quizzes (10%)
c) Laboratory Exercises (15%):
d) Problem Sets (30%): Students will earn full credit for assignments that may include required written, electronic and printed components in which the assigned questions and activities are addressed completely and directly.
e) Literature Review (5%): Integrated review of literature relevant to final project work.
f) Final Project and Presentation (30%): This is a major part of the course and must receive a significant amount of each student's attention. Final project topics must be approved in advance by the instructor. Projects on unapproved topics will not be accepted and will receive a failing grade. The grade for this project will be assessed based on data modeling and management, cartographic and graphic quality of maps or digital map products, thoroughness of documentation, and applicability to the problem being addressed. Each student must create a presentation that effectively presents the results of their GIS final

project. Presentations awarded full points will be professional (well-rehearsed, high-quality products) and will clearly demonstrate the student's seriousness and perseverance.

8. Grading System

	-		+
A	90-92	93-97	98-100
B	80-82	83-87	88-89
C	70-72	73-77	78-79
D	60-62	63-67	68-69
F		<60	

9. Required Materials

How to Lie with Maps. (2018), 3ed. by Mark Monmonier; Univ. of Chicago Press.

- **ISBN-10:** 022643592X
- **ISBN-13:** 978-0226435923

NOTE: This is a new edition of the textbook!

The book is available from the following websites for under $25, and as an ebook for under $20:

- UMM Bookstore
- Half.com
- Barnes and Noble
- Amazon.com

You will need to use How to Lie with Maps beginning on September 7th.

Provided for free:

- Essentials of Geographic Information Systems by Jonathan Campbell and Michael Shin, 2011 ISBN 13: 978-1-4533219-6-6; Saylor Foundation https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=67
- Esri Academy modules and readings
- ArcGIS Desktop 10.7 Help (free online) http://desktop.arcgis.com/en/arcmap/
- Additional readings, as assigned

10. Accommodations and Special Circumstances: If you have a disability for which you may be requesting an accommodation, please contact Student Accessibility Services, 121 East Annex, 581.2319, as early as possible in the term. Students who have already been approved for accommodations by SAS and have a current accommodation letter should meet with me, Tora Johnson, privately as soon as possible.

If you have ANY other circumstance that makes it difficult for you to feel comfortable in class, complete your coursework, or access education, please feel free to let me know. Even if you are taking the class from a distance, there is a lot I can do to help.

11. Academic dishonesty Academic honesty is very important. It is dishonest to cheat on exams, to copy term papers, to submit papers written by another person, to fake experimental results, or to copy or reword parts of books or articles into your own papers without appropriately citing the source. Students committing or aiding in any of these violations may be given failing grades for an

assignment or for an entire course, at the discretion of the instructor. In addition to any academic action taken by an instructor, these violations are also subject to action under the University of Maine Student Conduct Code. The maximum possible sanction under the student conduct code is dismissal from the University.

12. A Safe and Respectful Space to Learn: NO DIScounts! In this class, you must treat your classmates, your teacher, lab staff, and yourself with respect. Let's work together to make the lab and our online space a safe, pleasant, and functional place to work and learn for everyone. Be considerate, quiet, neat, helpful, and supportive. If someone is doing something inappropriate in class, please tell me immediately.

IN CLASS, DO NOT text, peruse or post on social media, play video games, surf the web for things unrelated to class, etc.

DO NOT post or say hostile, derisive, offensive or otherwise inappropriate comments.

Persistent disruptive behavior in class or online will be grounds for disciplinary action and may result in removal from the class. In that event, you will get an F in the class and will not receive a refund on your tuition.

13. Course Schedule Disclaimer (Disruption Clause): In the event of an extended disruption of normal classroom activities, the format for this course may be modified to enable its completion within its programmed time frame. In that event, you will be provided an addendum to the syllabus that will supersede this version.

14. Observance of Religious Holidays/Events: The University of Maine recognizes that when students are observing significant religious holidays, some may be unable to attend classes or labs, study, take tests, or work on other assignments. If they provide adequate notice (at least one week and longer if at all possible), these students are allowed to make up course requirements as long as this effort does not create an unreasonable burden upon the instructor, department or University. At the discretion of the instructor, such coursework could be due before or after the examination or assignment. No adverse or prejudicial effects shall result to a student's grade for the examination, study, or course requirement on the day of religious observance. The student shall not be marked absent from the class due to observing a significant religious holiday. In the case of an internship or clinical, students should refer to the applicable policy in place by the employer or site.

15. Sexual Discrimination Reporting: The University of Maine is committed to making campus a safe place for students. Because of this commitment, if you tell any of your teachers about sexual discrimination involving members of the campus, your teacher is required to report this information to Title IX Student Services or the Office of Equal Opportunity.

Behaviors that can be "sexual discrimination" include sexual assault, sexual harassment, stalking, relationship abuse (dating violence and domestic violence), sexual misconduct, and gender discrimination. Therefore, all of these behaviors must be reported.

Why do teachers have to report sexual discrimination? The university can better support students in trouble if we know about what is happening. Reporting also helps us to identify patterns that might arise – for example, if more than one victim reports having been assaulted or harassed by the same individual.

What will happen to a student if a teacher reports? An employee from Title IX Student Services or the Office of Equal Opportunity will reach out to you and offer support, resources, and information. You will be invited to meet with the employee to discuss the situation and the various options available to you.

If you have requested confidentiality, the University will weigh your request that no action be taken against the institution's obligation to provide a safe, nondiscriminatory environment for all students. If the University determines that it can maintain confidentiality, you must understand that the institution's ability to meaningfully investigate the incident and pursue disciplinary action, if warranted, may be limited. There are times when the University may not be able to honor a request for confidentiality because doing so would pose a risk to its ability to provide a safe, nondiscriminatory environment for everyone. If the University determines that it cannot maintain confidentiality, the University will advise you, prior to starting an investigation and, to the extent possible, will share information only with those responsible for handling the institution's response

The University is committed to the well-being of all students and will take steps to protect all involved from retaliation or harm.

If you want to talk in confidence to someone about an experience of sexual discrimination, please contact these resources:

For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For *confidential resources off campus*: Rape Response Services: 1-800-871-7741 or Partners for Peace: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Some Advice:

- You should plan on spending at least 5 to 10 hours per week doing GIS work. So please inspect your personal weekly schedule to be sure that you budget sufficient time. You will have several problem sets due in quick succession over the course of the semester. Be careful of falling behind in the class. Late assignments will get low grades, and you can leave yourself in a real jam with your project if you fall behind. If you start slipping behind, talk to your instructor as soon as you can so we can work on getting you caught up.

- We will be using software that is the industry standard for GIS. Though it is very powerful and versatile (that's why so many people use it), it is notoriously temperamental. Save often and don't get too attached to doing things in one particular way—often you will need to work around difficult problems. Breathe, be patient, and ask for help. Don't try to memorize all the buttons and steps; it's impossible. Instead use a heuristic, "trial and error" approach to solving problems.

- Communicate with your instructor, TAs, and classmates about problems you encounter or questions you have. You will save yourself lots of time and frustration if you draw on as many resources as you can to solve GIS problems (that's how we do it in the "real world"). It's not cheating as long as all your assignments are written in your own words and reflect your own work.

- Feel free to call me on my cell (voice or text) or send a message on Facebook or Google Chat. However, please don't call or text before 8am or after 9pm unless it's an actual emergency. I actually WANT you to call with problems, rather than spending hours in frustration. Ultimately, it will save us all time and help you learn and progress.

- Plan to spend several hours per week outside of class time to complete your assignments. It's a good idea to block out time in your schedule to spend in the lab or at your computer. That way you will be sure to devote the time and won't schedule over it. Also, expect to spend more time toward the end of the semester.

- "But I only need to make one map for my project," you say. "I can probably pull a couple of all-nighters during finals week to get it done." Don't count on it. Your project will involve generating new map layers, and the technology is not always cooperative—especially during finals week.

- DO make yourself comfortable in the lab whenever you are there. Feel free to adjust the positions of chairs, monitors, mice, and keyboards.

- DO NOT plagiarize in your written assignments. Answers for all assignments should represent your original work and your own words. That means you should NEVER, EVER copy material in print or online or from any other source without setting it apart in quotes or by indentation and using proper and complete attribution. A quote will NEVER, EVER constitute a complete answer to an assigned question and may only be used as supporting information to your original answers.

- DO NOT plagiarize maps or GIS data. Assigned maps should be designed by you and must not be made from existing templates or symbologies, except where the assignment calls for a template (group projects will often involve templates, for example). Maps made from unassigned templates will not be accepted. Typically, yellow "layer" files with the .lyr extension and map template files with the .mxt extension are not to be used to make a new map, unless your assignment specifically calls for them.

13. GIS Lab Guidelines:

- For UM students: You may the GIS Lab in Nutting Hall, room 254. You may visit the lab whenever it is not being used (a schedule will be posted on the door and our course website). You may use your Maine Card to access the lab. NOTE THAT THE MACHINES IN THIS LAB ARE FROZEN AND WILL NOT SAVE YOUR WORK. I RECOMMEND BACKING UP YOUR WORK ON A SOLID STATE EXTERNAL HARD DRIVE, LARGE-CAPACITY USB STICK, AND/OR GOOGLE DRIVE.

- All of the guidelines for the campus computer labs apply to the GIS labs. In addition, the GIS labs are for GIS work only. High bandwidth uses of the labs can bog down the network, cost the school a fortune to remedy, and endanger all your hard work. Emails could introduce

viruses. Using lab printers for non-GIS uses will consume ink and paper needed for your projects. Using computers and equipment for non-GIS tasks will be grounds for removal from the class.

- Food and drinks are NOT permitted in the labs, with the sole exception of water in sealable containers. Such containers must be kept sealed and off computer tables when not in use.

- DO NOT give out your passwords or software licenses to your friends, family, Uncle Jimmy, etc., even if they're really nice. Don't allow non-GIS folks to have access to the building when it is closed.

- You may only open emails on lab systems for GIS-related reasons WITH APPROVAL from the instructor or staff. Viruses can destroy files and render the systems unusable. Please let us know if you see anyone using the lab for these kinds of things.

THE UNIVERSITY OF MAINE

NEW COURSE PROPOSAL/MODIFICATION/ELIMINATION FORM FOR GRADUATE COURSES

Graduate course proposals, modifications, or eliminations must be submitted to the Graduate School no later than the 3rd of each month. Please refer to the Graduate School website for the Curriculum Committee meetings schedule. Electronic signatures and submission is required.

Please return the completed e-form with appropriate signatures and documentation to the Graduate School by saving the form to your desktop and sending as an attachment to graduate@maine.edu. Please include in the subject line 'Course Proposal' and the course designator and number.

GRADUATE PROGRAM/UNIT Anthropology

COURSE DESIGNATOR ANT COURSE NUMBER 522 EFFECTIVE SEMESTER Fall 2020

COURSE TITLE Geographic Information Systems II

REQUESTED ACTION

NEW COURSE (check all that apply, complete Section 1, and submit a complete syllabus):

- ☐ New Course
- ■ New Course with Electronic Learning
- ☐ Experimental

MODIFICATION (Check all that apply and complete Section 2):

- ☐ Designator Change
- ☐ Number Change
- ☐ Title Change
- ☐ Description Change
- ☐ Prerequisite Change
- ☐ Credit Change
- ☐ Cross Listing (must be at least 400-level)[1]
- ☐ Other (specify) _____

ELIMINATION:

- ☐ Course Elimination

ENDORSEMENTS

Please sign using electronic signatures. If you do not already have a digital signature, please click within the correct box below and follow the on-screen instructions.

Leader, Initiating Department/Unit(s)

Gregory Zaro Digitally signed by Gregory Zaro Date: 2020.04.30 13:56:33 -04'00'

College(s) Curriculum Committee Chair(s) [If applicable]

College Dean(s)

10 Aug 2020

Graduate School [sign and date]

1. Courses cross-listed below 400-level require the permission of the Graduate School.

SECTION 1 (FOR NEW COURSE PROPOSALS)

Proposed Catalog Description (include designator, number, title, prerequisites, credit hours):

ANT 522 Geographic Information Systems II
This is an intermediate/advanced course for students who have had some introduction to GIS and wish to pursue applications in the natural and social sciences. We will focus on grid-based data models for visualization, modeling, and analysis. Assessment will be based on problem sets, lab work, and a final project. Readings, assignments, activities, and discussions will cover: The raster data model, generating and working with grid data, georeferencing images and grids, remote sensing technologies and data, visualizing and managing raster datasets, interpolation methods for generating continuous surface data, mathematical operations with grid data for spatial analysis, map algebra and grid-based modeling, modeling to assess or predict habitat, development, and risk, basic change analysis with satellite imagery, evaluating and documenting error and uncertainty, ethics and accountability in spatial analysis, modeling and visualization. Prerequisites: ANT 521 GIS I or permission of instructor. 3 credits

Components (type of course/used by Student Records for MaineStreet) – *Multiple selections are possible for courses with multiple non-graded components:*

☐ Applied Music	☐ Clinical	☐ Field Experience/Internship	☐ Research	☐ Studio
■ Laboratory	☐ Lecture/Seminar	☐ Recitation	☐ Independent Study	☐ Thesis

Text(s) planned for use:

As assigned, including selections from Esri Academy modules and readings; Essentials of Geographic Information Systems by Jonathan Campbell and Michael Shin, 2011 ISBN 13: 978-1-4533219-6-6; Saylor Foundation https://open.umn.edu/opentextbooks/BookDetail.aspx?bookId=67; Beyond Mapping III by Joseph K. Berry http://www.innovativegis.com/basis/BeyondMappingSeries/BeyondMapping_III/Default.htm; ArcGIS Documentation

Course Instructor (include name, position, teaching load):

Tora Johnson, UM SFR Cooperating Graduate Faculty & UM-Machias Associate Professor of GIS

Reason for new course:

This listing will allow UM graduate students additional graduate options for adding GIS to their course of study. Currently, several graduate students per year take UMM GIS courses through awkward arrangements between the two campuses. Listing this course through the UM Graduate School would streamline this process and allow greater oversight from SFR and Graduate School.

Does the course addition require additional department or institutional facilities, support and/or resources, e.g. new lab facilities, computer support and services, staffing (including graduate teaching assistants), or library subscriptions and resources?

○ No. The department will not request additional resources for this course.

◉ Yes. Please list additional resources required and note how they will be funded or supported.

Students will require access to the Nutting GIS laboratory used by the co-listed UMM GIS 400 course

What other departments/programs are affected (e.g. course overlap, prerequisites)? Have affected departments/programs been consulted? Any concerns expressed? Please explain.

Currently, the only intermediate GIS courses emphasizing analysis available at UM at the graduate level are SIE 510 GIS Applications and SIE 512 Spatial Analysis. These courses do not meet the needs of many graduate students at UM. Programs that require and have requested additional curriculum include marine science and policy, survey engineering, economics, social sciences, anthropology, geography, history.

How often will this course be offered? Will offering this course result in overload salary payments, either through the college or CED, either to the instructor of this course or to anyone else as a result of rearranging teaching assignments?

This course will be dual-listed with GIS 400 at UMM and offered every semester. No additional overloads will be required to offer the course.

Syllabus for ANT 522: Geographic Information Systems II

Instructor: Dr. Tora Johnson
UM-Machias GIS Service Center Director/ UM SFR Cooperating Graduate Faculty
Faculty Office: UMM Science 107A ~ UMM GIS Lab Office: Torrey 223
Office Hours: TBA or by appointment
Phone: (207) 255-1214 (office)/ 266-2268 (cell)
Email: tjohnson@maine.edu or tora@svbetsy.com

Office Hours (SUBJECT TO CHANGE), visit this page for current office hours schedule. YOU MAY RESERVE TIMES TO MEET DURING OFFICE HOURS IN PERSON, BY PHONE, OR ONLINE AT http://bit.ly/toraofficehours. If you are meeting via Zoom, check your email at your meeting time or simply log onto https://maine.zoom.us/j/2072551214. You may use audio via your computer microphone and speakers or via telephone: US: +1 646 876 9923 or +1 669 900 6833 or +1 408 638 0968 (in Canada: +1 647 558 0588). Meeting ID: 207 255 1214

Class Meetings: Weekly live meetings TBA or watch recorded lectures at your convenience
Labs: Online students: Complete lab assignments on your own.

IMPORTANT: All GIS II students are required to use the course website for assignments, quizzes, discussion forums, grades and streaming lectures. **We WILL NOT be using Blackboard.**

1. Prerequisites: ANT 521 Geographic Information Systems I or permission. Experience with spreadsheets, high school algebra, and general knowledge of descriptive statistics are helpful. Students will be expected to spend a significant amount of time in the lab to complete lab activities and manage independent projects.

2. Course Description: This is an intermediate/advanced course for students who have had some introduction to GIS and wish to pursue applications in the natural sciences. We will focus on grid-based data models for visualization, modeling, and analysis. Assessment will be based on problem sets, lab work, and a final project. Readings, assignments, activities, and discussions will cover: The raster data model, generating and working with grid data, georeferencing images and grids, remote sensing technologies and data, visualizing and managing raster datasets, interpolation methods for generating continuous surface data, mathematical operations with grid data for spatial analysis, map algebra and grid-based modeling, modeling to assess or predict habitat, development, and risk, basic change analysis with satellite imagery, evaluating and documenting error and uncertainty, ethics and accountability in spatial analysis, modeling and visualization. 3 credits.

NOTE: Requirements for the graduate section of GIS II are different from those for the undergraduate section. The differences are as follows:

- ANT 522 includes a literature review assignment not required in the undergraduate section.
- ANT 522 students are required to do a paper for their final project; the undergraduate section requires a poster or a lesson plan.
- Rubrics for ANT 522 projects (but not problem sets or labs) are different, placing greater weight on written work.

- ANT 522 students are expected to do projects related to their thesis or dissertation work.

3. Learning Outcomes

1. Intermediate to advanced ability to read maps, constructively critique their cartographic design, and evaluate how they communicate information
2. Ability to symbolize raster data sets for effective communication
3. Working knowledge of the raster data model and types of raster data sets
4. Ability to design, execute, evaluate, and document raster and vector analysis models, including map algebra, for natural resource applications
5. Ability to conduct basic spatial statistical analysis
6. Ability to translate a problem in science or policy into raster data and analytical models, and use ArcGIS Spatial Analyst software and methods to produce maps and/or information addressing those needs
7. Intermediate understanding of projections, coordinate systems and georeferencing
8. Familiarity with the breadth and depth of applications of raster data models and analysis in natural resource applications
9. Familiarity with principles and concepts of cartography, information science, geography, and design as they relate to raster analysis

4. Methodology: This course relies heavily upon learning advanced ArcGIS software and applying it to a geographic problem. To this end, the course includes lab sessions, lectures, activities, assignments, and discussions intended to provide students with the knowledge, skills, and perspectives they need to understand and use raster data models and tools for spatial analysis.

5. Activities and Assignments: Late assignments, without PRIOR arrangement with the instructor, will receive a reduced grade.

i) Lab Assignments: There will be weekly online lab exercises via the Esri Online Training website, and students will complete the module test at the end of modules.
ii) Quizzes: There will be occasional short quizzes on the course website to be taken on material from the lectures, labs and readings.
iii) Problem Sets: In addition, there will be two or three assignments that allow students to practice and apply the concepts and skills presented in class. The problem sets will commonly include both mapmaking exercises and written responses. Assignments must be submitted as required (your instructor will specify which you are to use) to receive full credit.
iv) Map Critique: Once during the semester, each student will find a map or set of maps that interest them and lead a class critique of that map.
v) Literature Review: Integrated review of literature relevant to final project work.
vi) Final Project: Each student will be responsible for completing a final project applying the course concepts and skills to a problem of interest. In addition to maps, the project will include thorough documentation of the process, relevant background, and theoretical frameworks.
vii) Final Project Presentation: Each student will give a formal 10 to 15 minute presentation of their final project at the end of the semester. If the class does one or more group service projects for clients, the presentations will likely be given to the clients as well as classmates.

6. Attendance and Class Participation Policy:

i) Attendance: I will monitor and evaluate students' on-campus attendance in class, and you will be required to enter an attendance code for each lecture. Excused absences are not penalized. Unexcused and notable strings of absences will result in the subtraction of points from your final grade. Students are responsible for material missed because of absence.

ii) Participation: In addition to participation in class activities, students are expected to come prepared, including reading and lab work, and regularly contribute to class discussions over the course of the semester.

7. Evaluation: Grades will be calculated as follows:

- Attendance & Participation (10%)
- Problem Sets (20%): Students will earn full credit for assignments that include required written, electronic and printed components in which the assigned questions and activities are addressed completely and directly.
- Lab Assignments (20%) Students must present confirmation of modules completed to receive credit for lab activities.
- Quizzes (10%)
- Map Critique (5%): Students must show an understanding of the relevant criteria and processes for map critique discussed in class and lead a discussion about a map of their choosing.
- Literature Review (5%): Integrated review of literature relevant to final project work.
- Final Project (25%): This is a major part of the course and must receive a significant amount of each student's attention. Final project topics must be approved in advance by the instructor. Most GIS II classes take on one or more group projects for clients, in which case students will be required to contribute to a larger effort. Projects on unapproved topics will not be accepted. The grade for this project will be assessed based on data modeling and management, cartographic and graphic quality of maps or digital map products, thoroughness of documentation, effort and conscientiousness, and applicability to the problem being addressed.
- Final Project Presentation (5%): Each student must create a presentation that effectively presents the results of their GIS final project. Presentations awarded full points will be professional (well-rehearsed, high-quality products) and will clearly demonstrate the student's seriousness and perseverance.

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9. Required Materials: In addition to the online modules, readings will be assigned from the required texts:

As assigned, including selections from...

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For *confidential resources on campus*: Counseling Center: 207-581-1392 or Cutler Health Center: at 207-581-4000.

For *confidential resources off campus*: Rape Response Services: 1-800-871-7741 or Partners for Peace: 1-800-863-9909.

Other resources: The resources listed below can offer support but may have to report the incident to others who can help:

For *support services on campus*: Title IX Student Services: 207-581-1406, Office of Community Standards: 207-581-1409, University of Maine Police: 207-581-4040 or 911. Or see the OSAVP website for a complete list of services at http://www.umaine.edu/osavp/

Some Advice:

- You should plan on spending at least 5 to 10 hours per week doing GIS work. So please inspect your personal weekly schedule to be sure that you budget sufficient time. You will have several problem sets due in quick succession over the course of the semester. Be careful of falling behind in the class. Late assignments will get low grades, and you can leave yourself in a real jam with your project if you fall behind. If you start slipping behind, talk to your instructor as soon as you can so we can work on getting you caught up.

- We will be using software that is the industry standard for GIS. Though it is very powerful and versatile (that's why so many people use it), it is notoriously temperamental. Save often and don't get too attached to doing things in one particular way—often you will need to work around difficult problems. Breathe, be patient, and ask for help. Don't try to memorize all the buttons and steps; it's impossible. Instead use a heuristic, "trial and error" approach to solving problems.

- Communicate with your instructor, TAs, and classmates about problems you encounter or questions you have. You will save yourself lots of time and frustration if you draw on as many resources as you can to solve GIS problems (that's how we do it in the "real world"). It's not cheating as long as all your assignments are written in your own words and reflect your own work.

- Feel free to call me on my cell (voice or text) or send a message on Facebook or Google Chat. However, please don't call or text before 8am or after 9pm unless it's an actual emergency. I actually WANT you to call with problems, rather than spending hours in frustration. Ultimately, it will save us all time and help you learn and progress.

- Plan to spend several hours per week outside of class time to complete your assignments. It's a good idea to block out time in your schedule to spend in the lab or at your computer. That way you will be sure to devote the time and won't schedule over it. Also, expect to spend more time toward the end of the semester.

- "But I only need to make one map for my project," you say. "I can probably pull a couple of all-nighters during finals week to get it done." Don't count on it. Your project will

involve generating new map layers, and the technology is not always cooperative—especially during finals week.

- DO make yourself comfortable in the lab whenever you are there. Feel free to adjust the positions of chairs, monitors, mice, and keyboards.

- DO NOT plagiarize in your written assignments. Answers for all assignments should represent your original work and your own words. That means you should NEVER, EVER copy material in print or online or from any other source without setting it apart in quotes or by indentation and using proper and complete attribution. A quote will NEVER, EVER constitute a complete answer to an assigned question and may only be used as supporting information to your original answers.

- DO NOT plagiarize maps or GIS data. Assigned maps should be designed by you and must not be made from existing templates or symbologies, except where the assignment calls for a template (group projects will often involve templates, for example). Maps made from unassigned templates will not be accepted. Typically, yellow "layer" files with the .lyr extension and map template files with the .mxt extension are not to be used to make a new map, unless your assignment specifically calls for them.

13. GIS Lab Guidelines:

- For UM students: You may the GIS Lab in Nutting Hall, room 254. You may visit the lab whenever it is not being used (a schedule will be posted on the door and our course website). You may use your Maine Card to access the lab. NOTE THAT THE MACHINES IN THIS LAB ARE FROZEN AND WILL NOT SAVE YOUR WORK. I RECOMMEND BACKING UP YOUR WORK ON A SOLID STATE EXTERNAL HARD DRIVE, LARGE-CAPACITY USB STICK, AND/OR GOOGLE DRIVE.

- All of the guidelines for the campus computer labs apply to the GIS labs. In addition, the GIS labs are for GIS work only. High bandwidth uses of the labs can bog down the network, cost the school a fortune to remedy, and endanger all your hard work. Emails could introduce viruses. Using lab printers for non-GIS uses will consume ink and paper needed for your projects. Using computers and equipment for non-GIS tasks will be grounds for removal from the class.

- Food and drinks are NOT permitted in the labs, with the sole exception of water in sealable containers. Such containers must be kept sealed and off computer tables when not in use.

- DO NOT give out your passwords or software licenses to your friends, family, Uncle Jimmy, etc., even if they're really nice. Don't allow non-GIS folks to have access to the building when it is closed.

- You may only open emails on lab systems for GIS-related reasons WITH APPROVAL from the instructor or staff. Viruses can destroy files and render the systems unusable. Please let us know if you see anyone using the lab for these kinds of things.

September Flash Poll Findings

Research Overview

Research Plan

NAGAP, The Association for Graduate Enrollment Management, is collaborating with EAB, a leader in higher education research and services, on a series of flash polls investigating the graduate school landscape.

The first poll focused on current practices in light of the COVID-19 pandemic. It explored institutional responses and preparations practitioners may be making in response to COVID-19.

Data Collection

Survey invitations from EAB were emailed on September 22, 2020. From the email, participants linked to the online survey.

The surveyed population consists of graduate and professional school enrollment managers and other higher education practitioners—including current NAGAP members.

Nonresponders were sent a reminder on September 29.

Data collection ended on October 2.

Participant Profile

468 individuals participated in the study.

Participants represented 350+ institutions/programs from across the country and 12 international schools.

69.9% of participants represent a blend of on-campus and online programs, 20.7% represent on-campus-only programs, and 2.8% represent online-only programs.

Approximately one-quarter of participants were from institutions/programs of the following sizes: <350 students, 350–949 students, 950–2,999 students, and 3,000+ students.

Key Findings

Results from September Flash Poll

Recruitment

Q. What adjustments were made to recruitment strategies and tactics due to COVID-19?

- Most participants added or increased virtual events (81.0%), increased personalized outreach from staff (57.1%), and/or increased marketing/ recruitment efforts (51.4%).
- A significant percentage added or promoted a virtual tour (45.0%), changed application deadlines (39.9%), and/or extended deposit deadlines (39.9%).
- Few institutions (1.9%) indicated they did not make any adjustments to recruitment strategies and tactics.

Enrollment

Q. What adjustments were made to enrollment strategies and tactics due to COVID-19?

- Most participants relaxed admissions testing requirements (59.7%) and/or offered deferred admission (52.3%).
- Few institutions (6.5%) indicated they did not make any adjustments to enrollment strategies and tactics.

Q. How were enrollment targets tracking as of September 15?

- Thirty-one percent are exceeding their targets, 30.7% are meeting their targets, 25.4% are missing their targets, and 13.0% were unsure.

Scholarships/Grants

Q. What actions were taken related to award plans?

- Most participants maintained their award plan (49.6%). Nearly one in five (18.2%) increased their award plan; only 4.1% decreased their award plan. Eleven percent were unsure, and 17.2% reported they do not offer scholarships/grants.

Q. Among those that increased award plans, who received more in aid dollars?

- Domestic students (66.3%), students with need (56.6%), full-time students (50.6%), and international students (33.7%).

Changes

Q. What changes are being made to graduate programs due to COVID-19?

- Expanding to fully online courses/programs (60.4%), canceling low-enrollment courses (18.4%), expediting new program launches (12.7%), and delaying new program launches (10.4%).
- Almost one-quarter (24.4%) are not making any changes to their graduate programs in light of COVID-19.

Key Findings

Results from September Flash Poll

Institutional Responses

Q. How satisfied are you with your school's plan for continuity of course delivery?

- Most participants are extremely (38.8%) or somewhat (46.1%) satisfied with their school's plan.
- Less than 5% are somewhat or extremely dissatisfied with their school's plan.

Q. Where are institutions most effective in managing challenges?

- Participants indicated their institutions were most effective with student access to online courses (4.22), access to support services (3.94), network capacity (3.92), and software systems.
- Participants indicated their institutions were least effective with graduation plans (3.13), support services for international students (3.43), and staff and training support (3.45).

Mean score based on a 5-point scale:
1 = not at all effective
2 = somewhat effective
3 = moderately effective
4 = very effective
5 = extremely effective

Concerns

Q. What keeps you up at night?

- Enrollment numbers (22.2%)
- Cost for students/access (10.2%)
- Safety of students and staff (8.9%)
- Recruiting students (8.6%)
- Concern about the value of a graduate degree (8.4%)
- Financial health of institutions/industry (8.2%)
- Access for international students (8.0%)
- Inability to adapt to the changing environment (5.3%)
- Uncertainty of future (4.7%)
- Budget cuts (4.0%)
- Meeting goals (3.5%)
- Job security (3.3%)

Priorities

Q. What are your top two priorities at this time?

- Making enrollment numbers (37.9%)
- Recruitment activities (35.2%)
- Student retention (10.8%)
- Marketing (10.6%)
- Meeting students' needs (7.9%)
- Safety of students and staff (6.8%)
- International students (5.1%)
- Expanding online programs (4.9%)
- Adding/nurturing new programs (4.9%)
- Yield (4.1%)
- Financial health of the institution (3.8%)

Flash Survey Week 3: Student Services and Mental Health

Undergraduate & Graduate Students at UM & UMM

The third flash survey was sent to degree-seeking students at UMaine on Thursday September 17 and to degree-seeking students at UMM on Monday, September 21. Students were asked to indicate what student services they would like UM/UMM to add, how their anxiety level compared with prior semesters, and whether they know where to access student support and mental health services. Overall, we had 843 respondents. The following table shows the number of respondents by subgroup. ***Caution should be taken when interpreting these results: The 843 respondents to the survey are not a random sample of the population.***

Flash Survey Week 3: Responses

	Population	Number of Responses	% Response
UM First-Years*	1,911	147	8%
UM Transfers & Readmits	468	50	7%
UM Seniors	2,264	165	7%
UM Continuing undergraduates	3,749	228	6%
UMM Students	368	46	13%
New Graduate Students	812	68	8%
Continuing Graduate Students	2,116	139	7%

*Limited to 18 and older

Question 1: There are many student support services on campus but one important service the university should add is…

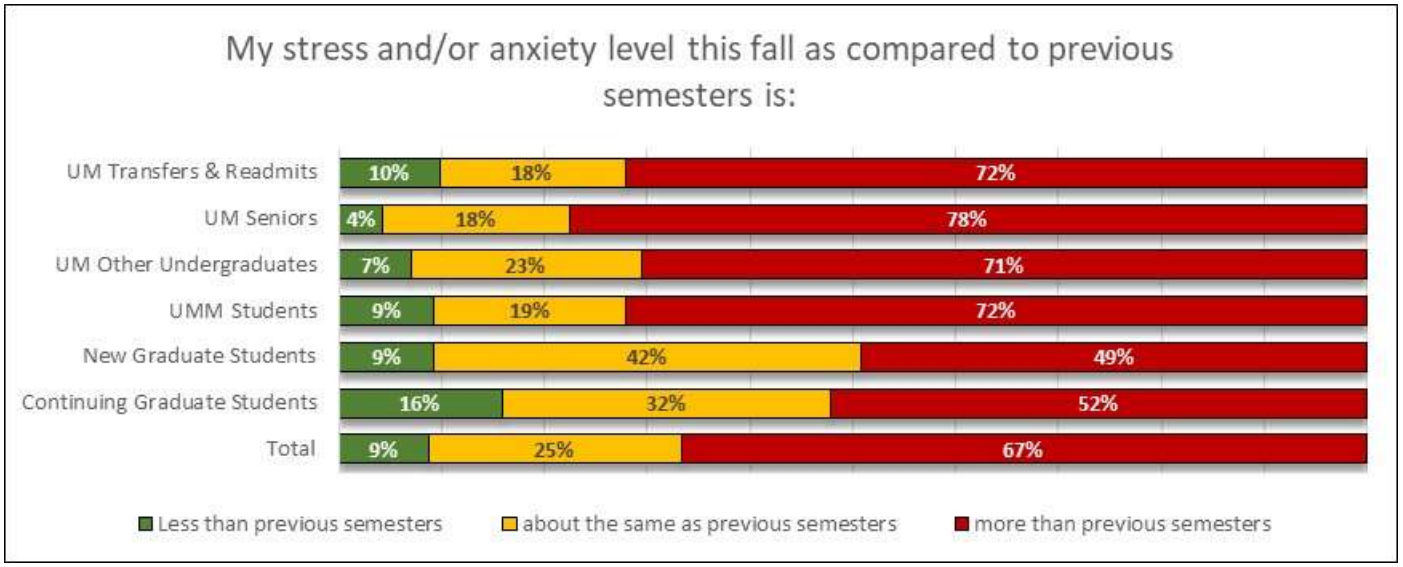
Students provided offered a wide range of questions. The individual suggestions have been categorized and can be found in the attached spreadsheet 'Resource Suggestions - Flash Survey Week 3". Mental health services were most commonly suggested.

Question 2: My stress and/or anxiety level this fall as compared to previous semesters is: (less than previous semesters, about the same as previous semesters, or more than previous semesters):

The following chart shows the percentage of students who responded to each choice grouped by university and level. (First-year students are not reported here as they do not have a reference point.)

Highlights:

- Overall, roughly two-thirds of respondents reported higher levels of stress and/or anxiety compared to previous semesters.
- Undergraduates were more likely than graduate students to indicate higher levels of stress and/or anxiety.
- Seniors were the most likely of all groups to report higher levels of stress and anxiety.



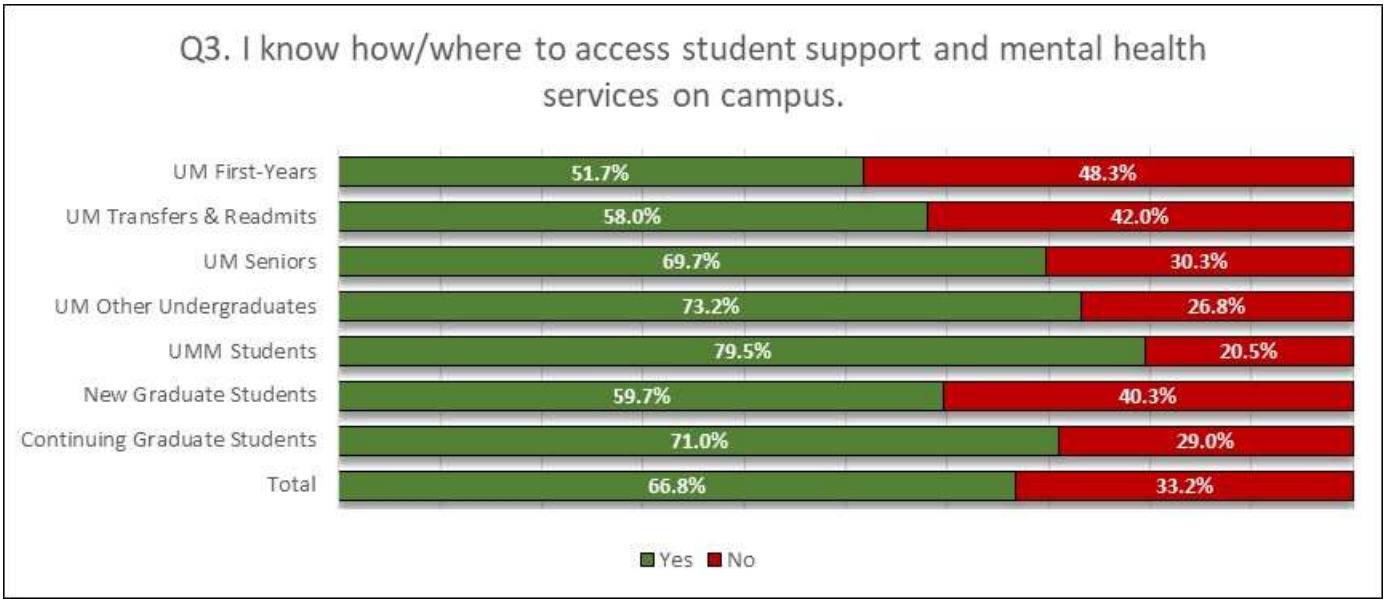
Question 3: I know how/where to access student support and mental health services on campus (choices were Yes or No).

The following chart shows the percentage of students who responded to each choice grouped by university and level.

Highlights:

- Overall, roughly one-third of respondents indicated they do not know how to access student support and mental health services.
- Not surprisingly, the first-year respondents are less aware of how to access support: Almost half indicated they do not know how to access student support and mental health services.

(UMaine Office of Institutional Research and Assessment, 9.30.20)



(UMaine Office of Institutional Research and Assessment, 9.30.20)

Q1: a new resource UMaine should add is:
Remote mental health services
I'd actually really love to see more supports for people who both work for the UMS and are students as well. Even when I was a GA, I sometimes found
Walk-in counseling if not already available
non recorded counseling options.
new grad student support groups
more mental health services to cope with the demand and reduce wait times for services
more mental health counselors
More counselors/mental health professionals
More counselors available at the counseling center
More counselors
Mental toughness and self reliance
mental health service
Mental awareness
Likelihood for increased Alcohol/Substance Use Support/Education
Is there family or marriage counseling for students?
COUNSELING FOR ATHLETES
additional individualized mental health services
better guidance for running labs that meet in person and remotely simultaneously
Quiet study booths
Maybe a place where students could obtain (for free or low price) old campus office supplies such as desks/chairs for home offices during a time
Allowances for disrupted research schedules / defenses
An elevater in merill hall
more online advisors
More advising
Career services
More training for professors in Brightspace
Someone to take care of student billing and registration
Financial support for the graduate international student
Financial Aid due to the implications of COVID.
Cost cutting
Allowing Orono residents to get refunded for the rec center
Weekend stress management events (ex: therapy dogs, paint and sip, etc)
helping people navigate new food allergies
DENTAL AND VISION INSURANCE FOR GRADUATE STUDENTS.
available dieititian

More in-person classes
Covid testing facility those who wanted to a test.
Visible and accessible support for Black and Indigenous students, plus other students of color
Online support times
NA- online student
I'm a remote student
I would like to see more off-campus support. What services are available to off campus students who are never on campus? More information about
Allow students to get a student ID card at any location. In order for me to apply for a student card with a photo (thus, photo ID), it requires me to take
Remote mental health services
better guidance for running labs that meet in person and remotely simultaneously
Better communication
free ice cream... worth a try ;-)
A Division of Student Life that isn’t disgustingly corrupt and is also effective.
More intuitive interface than MaineStreet
ensuring mainestreet is accurate to actual instructors modality of teaching dates/times/synchronous vs asynchronous and additional meeting times
Better/ faster technical help, especially with all the Zoom.
Better public transportation to reduce dependence on private vehicles
Parent-students
Not necessarily services that need to be added, but rather the mentality that needs to be changed.
None, you're doing a great job!
Consolidate services and make them more efficient

Fall 2020 Flash Survey Week 4: Course Experiences

UMaine and UMM

The fourth flash survey was sent to degree-seeking undergraduate students at UMaine on September 24 and UMM on September 28. Students were asked to rate their experiences in their courses by modality. Overall, we had 1,078 respondents. The following table shows the number of respondents by subgroup. ***Caution should be taken when interpreting these results. Please keep in mind the response rate for each student group and the fact that these 1,078 respondents are not a random sample of the population.***

Flash Survey Week 4: Responses

	Number of Survey Invitations Sent	Number of Responses	Percent of Survey Invitations Sent
First-Years*	1,900	109	6%
Transfers & Readmits	709	50	7%
Seniors	2,264	172	8%
Continuing undergraduates	3,749	238	6%
Total UM Undergraduate	*8,622*	*569*	*7%*
UMM	*368*	*40*	*11%*
Graduate	*2,159*	*469*	*22%*

*Limited to 18 and older

Question 1: Please indicate the modes of the courses you are taking this semester.

	Undergraduate					Graduate			UMM
	First-Years	Transfers	Seniors	Continuing.	Total	New	Continuing	Total	
In-person and I am attending in person (not including independent studies/thesis courses)	45	7	38	50	140	15	27	42	8
In-person but I am attending remotely	7	5	13	23	48	17	11	28	4
Remote/online synchronous (remote or online courses where material is delivered in real-time)	59	35	128	178	400	98	144	242	6
Online asynchronous (remote or online courses where material can be completed and accessed on your own schedule)	55	33	95	147	330	67	160	227	22
Hybrid (mix of remote/online and in-person)	59	18	61	73	211	19	23	42	22

(UMaine Office of Institutional Research and Assessment, 10.19.20)

Question 2: Please indicate your level of agreement with the following statements about your courses. Choices were: agree, somewhat agree, neither agree nor disagree, somewhat disagree, or disagree.

- ***MY technology (e.g., Wi-Fi, personal computer, etc.) is effective for this kind of learning.***
- ***MY technology will be effective for remote learning when we're all remote after Thanksgiving Break.***
- ***I am learning effectively with this kind of instruction.***
- ***I get to interact with my instructor effectively with this kind of instruction.***
- ***I get to interact with my classmates effectively with this kind of instruction.***

The following charts show the percentage of students who responded at each level of agreement. We present a chart for each item, with the results grouped by modality. Charts are sorted descending by the mean item ratings (5 = agree to 1 = disagree).

Highlights:

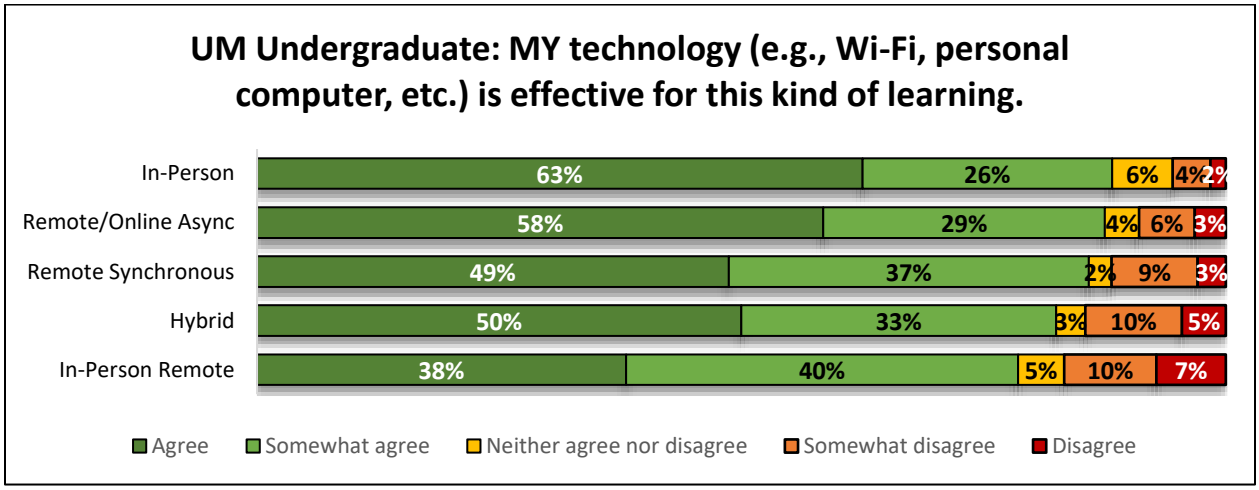
- Overall, at least 75% of respondents agree or somewhat agree that their technology is effective for the respective modality, and that it will continue to be after Thanksgiving break.
    - 13% of UM undergraduate respondents, 10% of UMM respondents, and 5% of graduate respondents indicated their technology is not going to be effective for at least one of their modalities after the transition to remote learning.
- Over two-thirds of UM undergraduate respondents taking in-person courses agree or somewhat agree that they are able to learn effectively, interact effectively with their instructor, and interact effectively with their classmates within an in-person modality.
- The responses from the UM undergraduate respondents highlight challenges associated with learning and interacting with instructors and classmates in remote and online modalities (synchronous and asynchronous):
    - Just over half of UM undergraduate respondents taking remote or online classes disagree or somewhat disagree that they are learning effectively in those modes.
    - The majority of respondents taking remote or online classes disagree or somewhat disagree that they are able to effectively interact with their instructor and/or classmates. The highest level of disagreement was with respect to asynchronous courses.

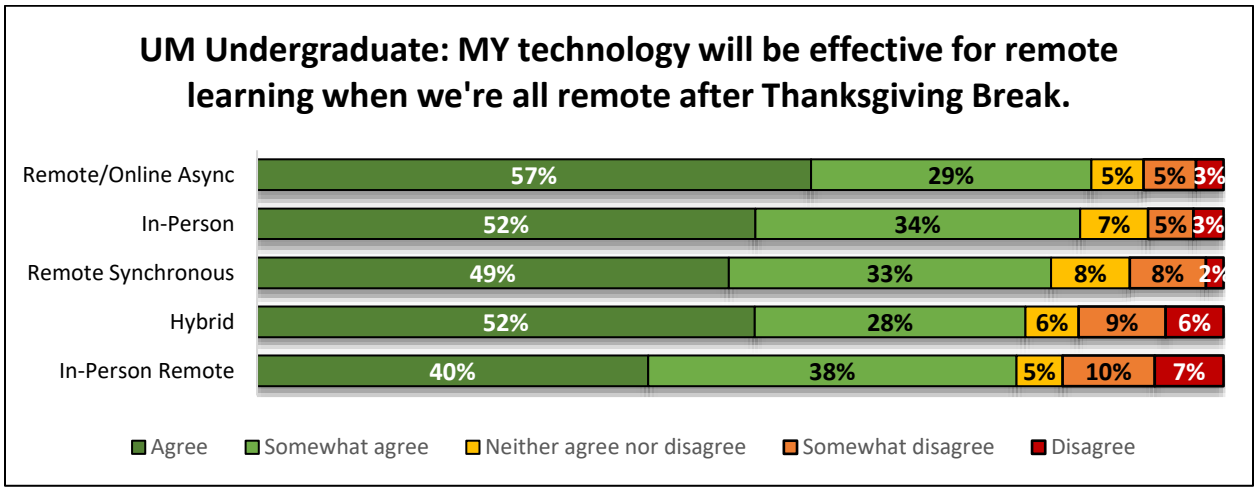
- UM graduate respondents reported general agreement that they are learning effectively in their current modes of instruction. The highest level of agreement is with respect to in-person instruction (92% agree or somewhat agree) and the lowest with respect to in-person courses being taken remotely (74% agree or somewhat agree). However, graduate students are less positive about their ability to effectively interact with their peers in synchronous and asynchronous remote or online classes.

- The majority of UMM respondents agree or somewhat agree that the current mode of instruction is effective for learning, but they are less positive about their ability to effectively interact with their instructor and their peers, particularly in the distance modalities.

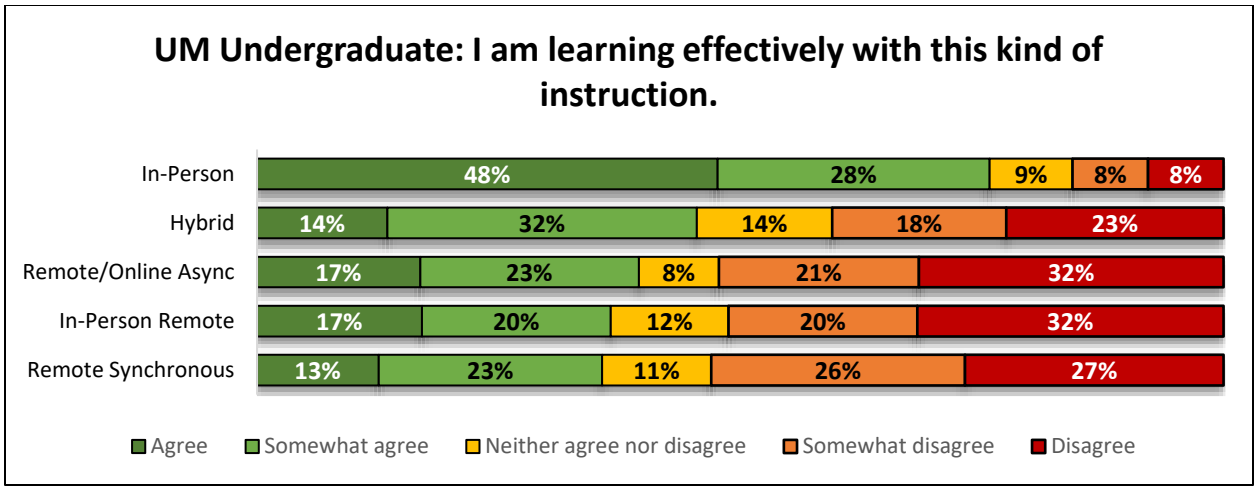
Level of Agreement by Item and Modality

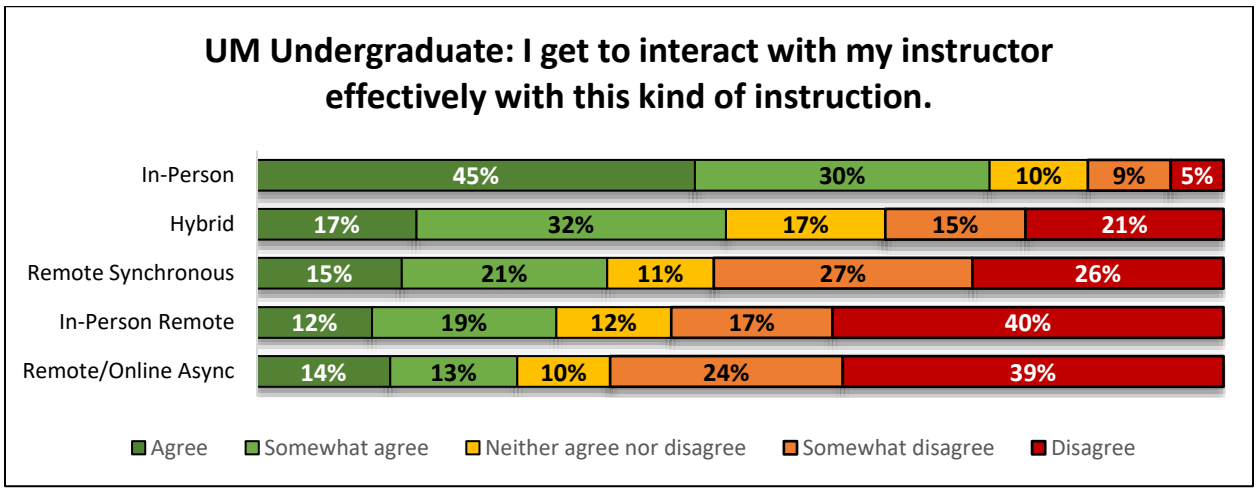
UMaine Undergraduate

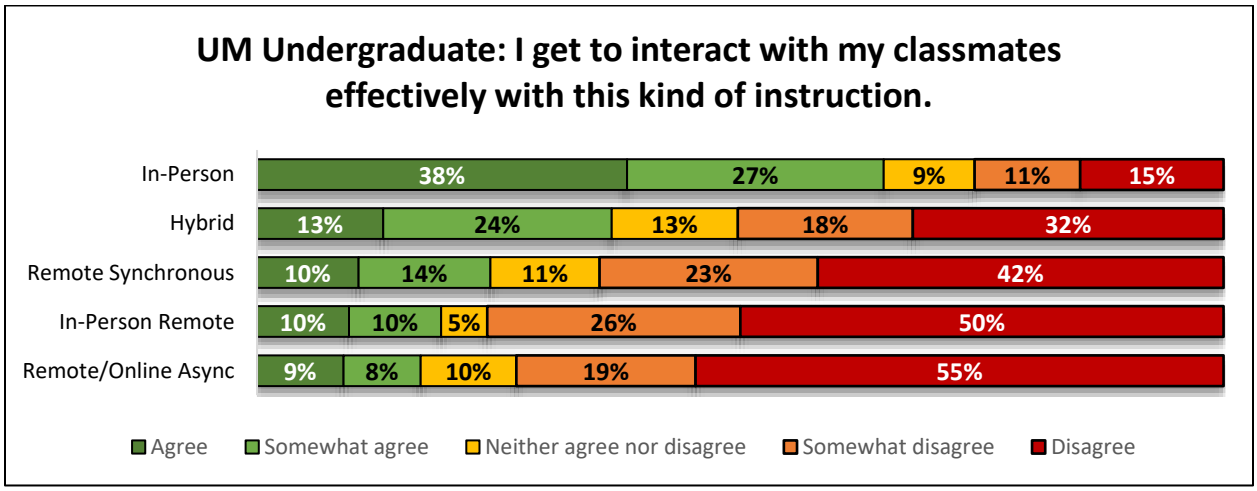




(UMaine Office of Institutional Research and Assessment, 10.19.20)

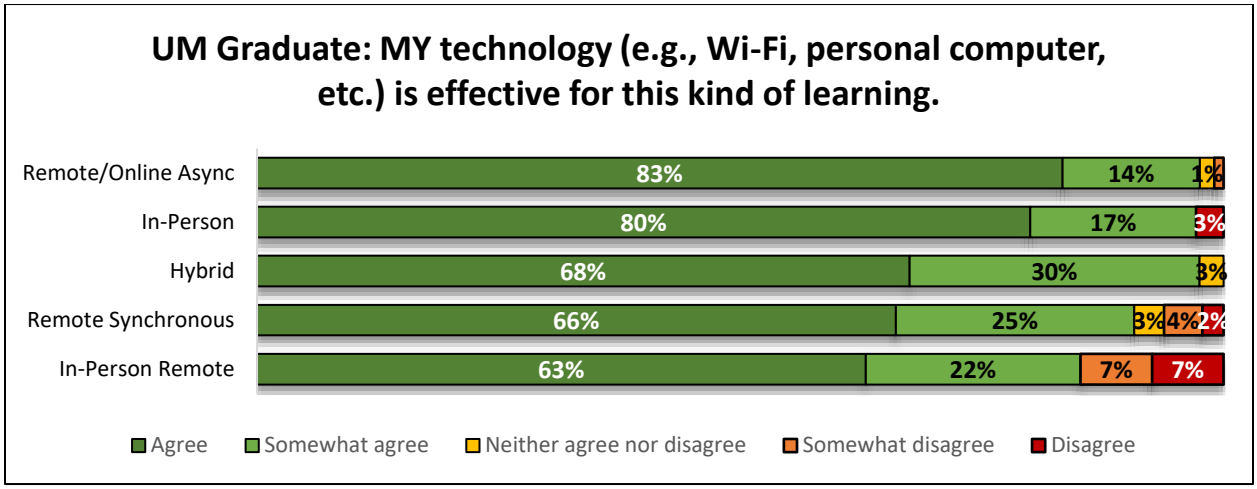


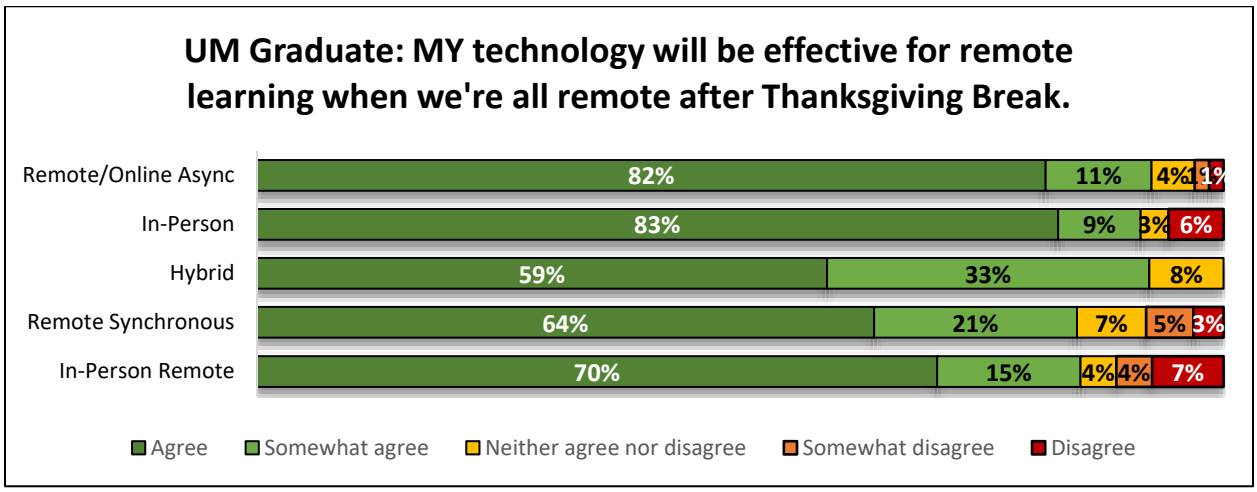


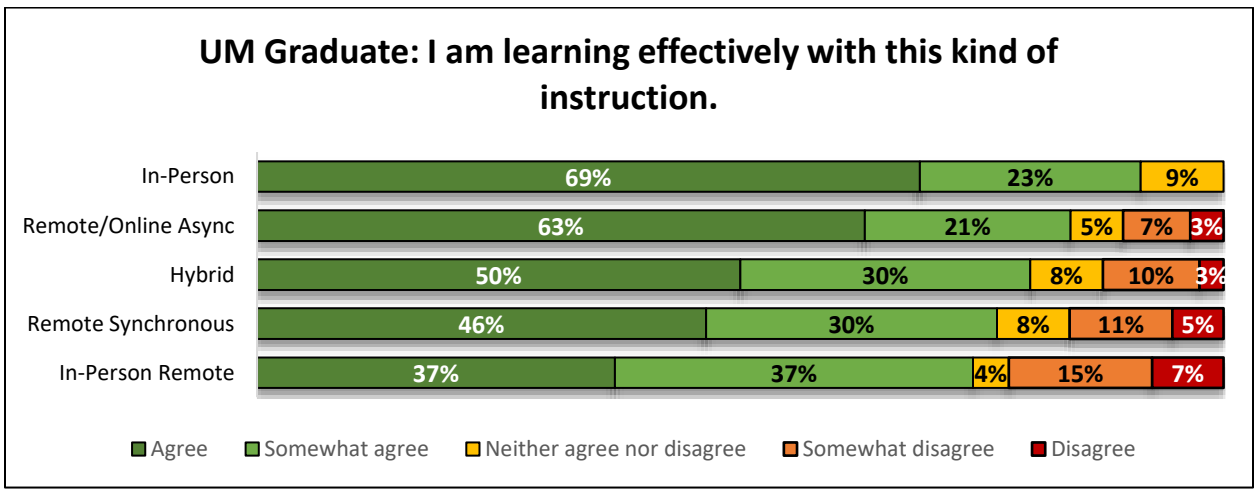


(UMaine Office of Institutional Research and Assessment, 10.19.20)

UMaine Graduate Students







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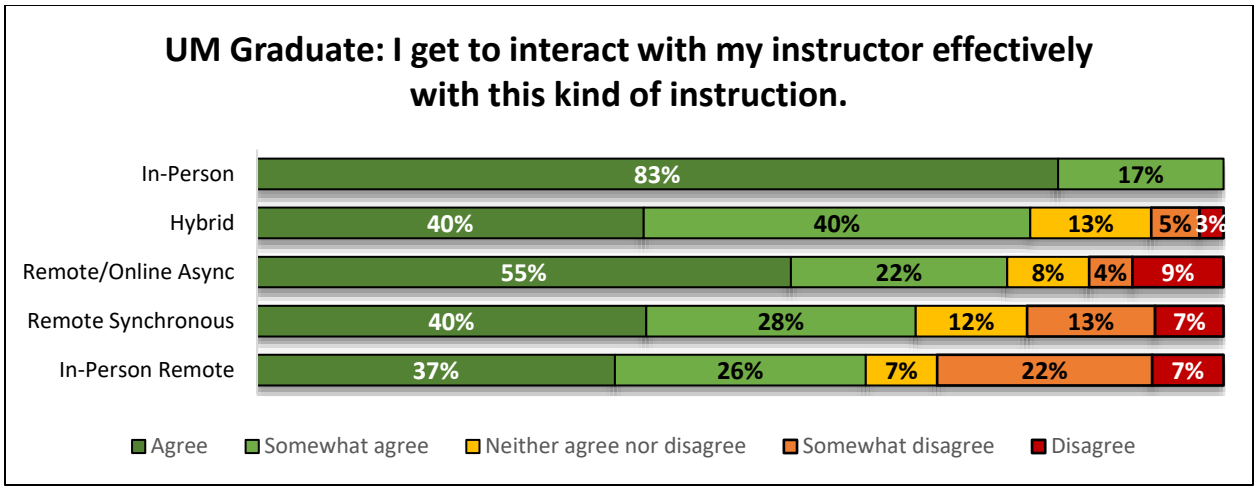
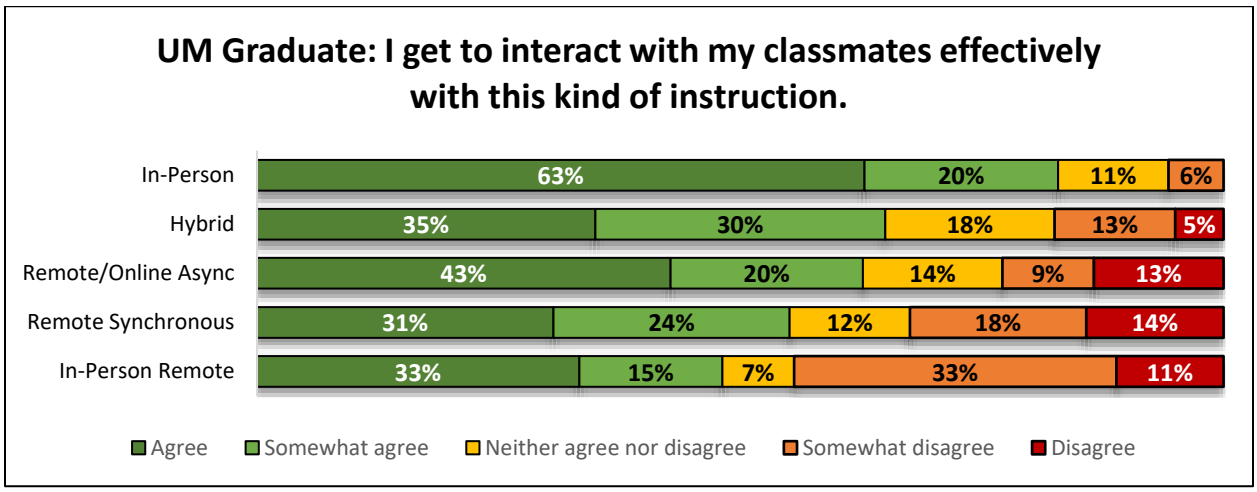
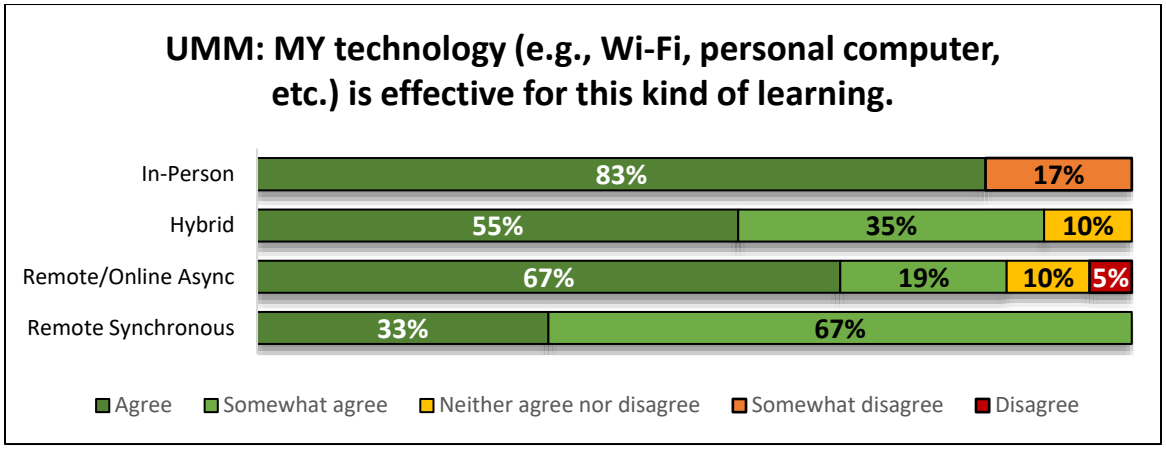
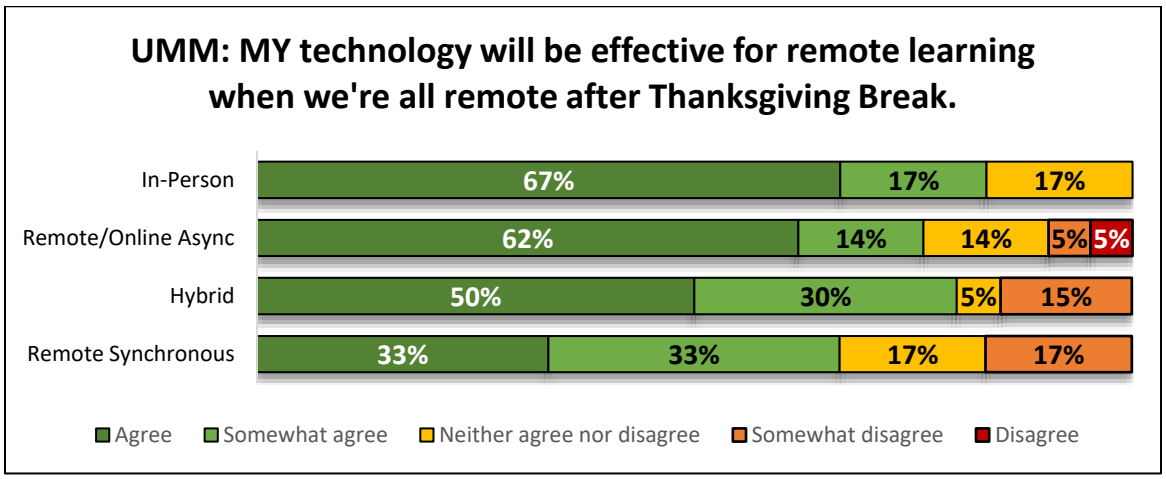


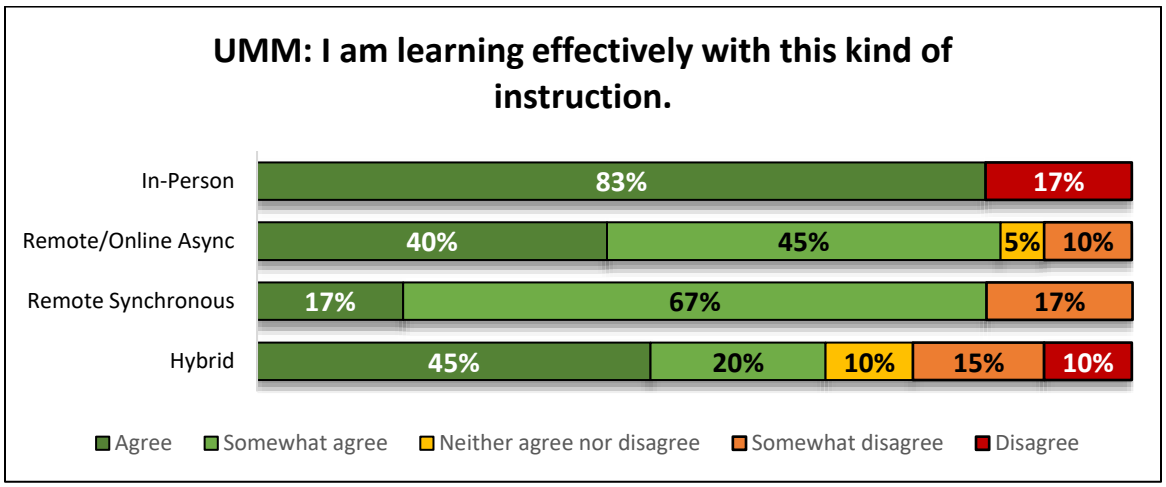


(UMaine Office of Institutional Research and Assessment, 10.19.20)

UMM







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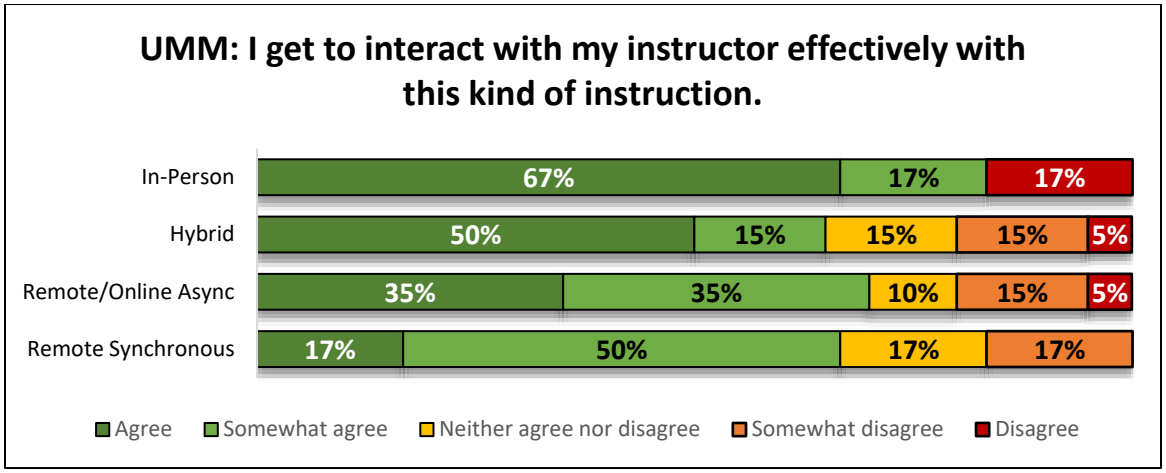
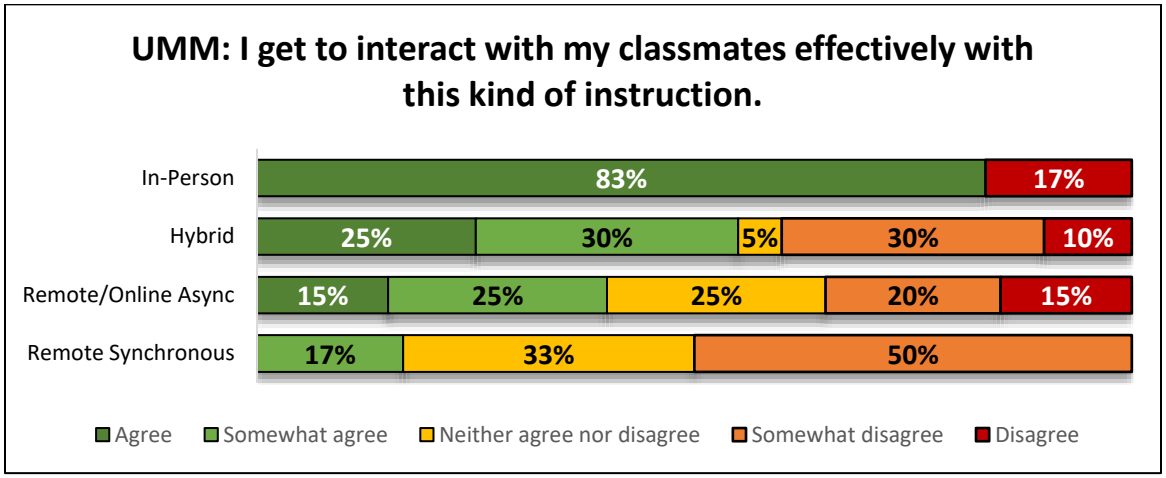




(UMaine Office of Institutional Research and Assessment, 10.19.20)

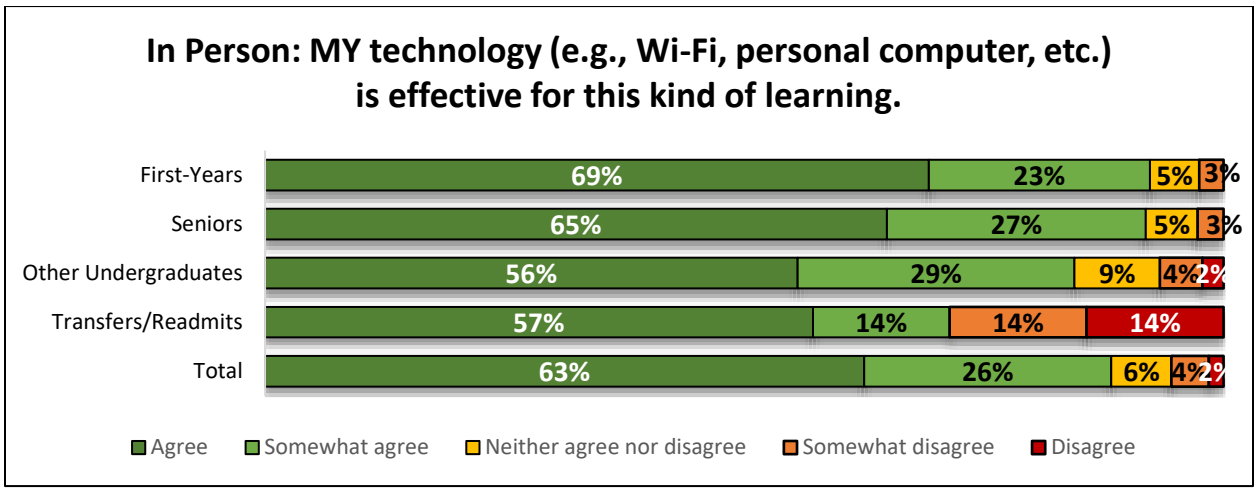
The following charts disaggregate the UM undergraduate responses by modality and class level.

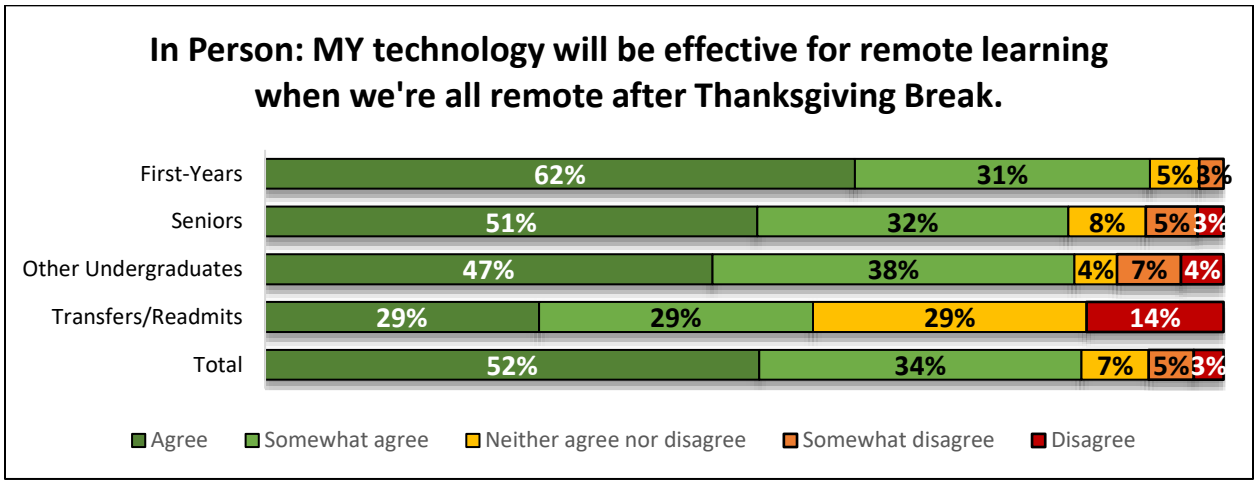
Highlights

- The responses of first-year students were the most positive of the groups with respect to (a) learning and interacting within in-person classes and (b) learning in hybrid classes. In contrast, their responses were the least positive with respect to learning and interacting in asynchronous classes.

- Transfer/readmit respondents were more likely than the other groups to disagree that they are able to interact effectively with their classmates.

UM Undergraduate: In Person by Class Level





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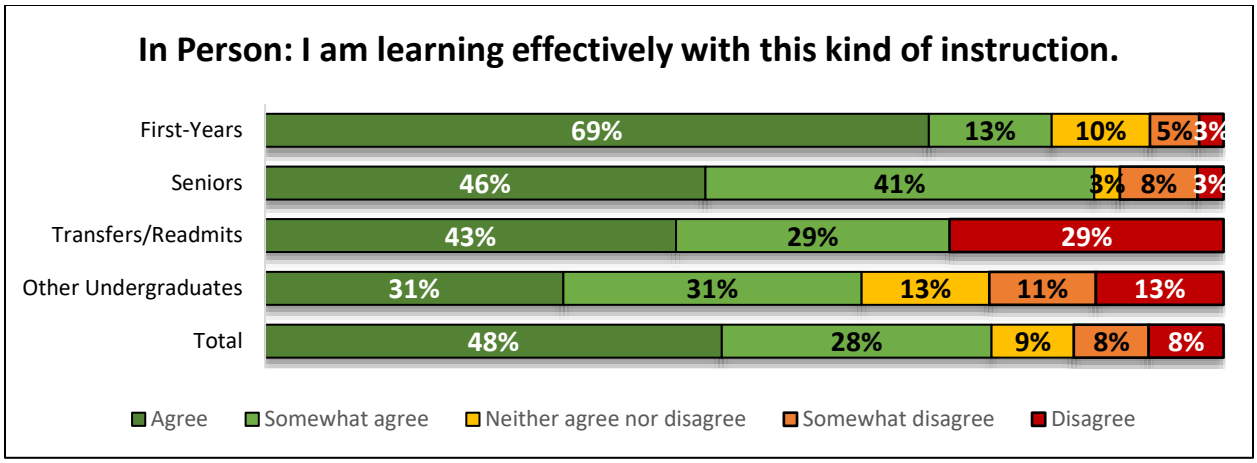
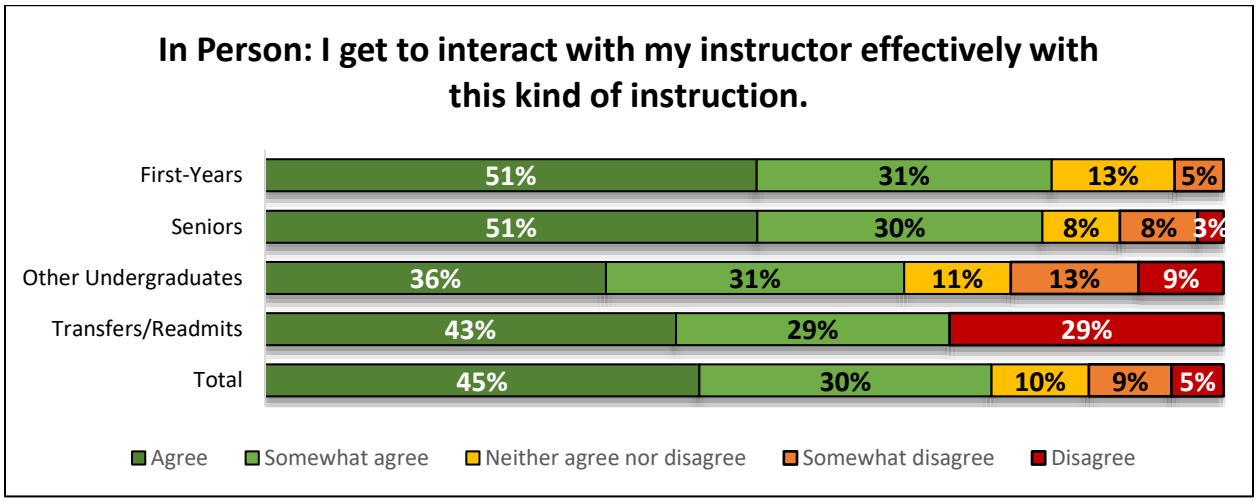
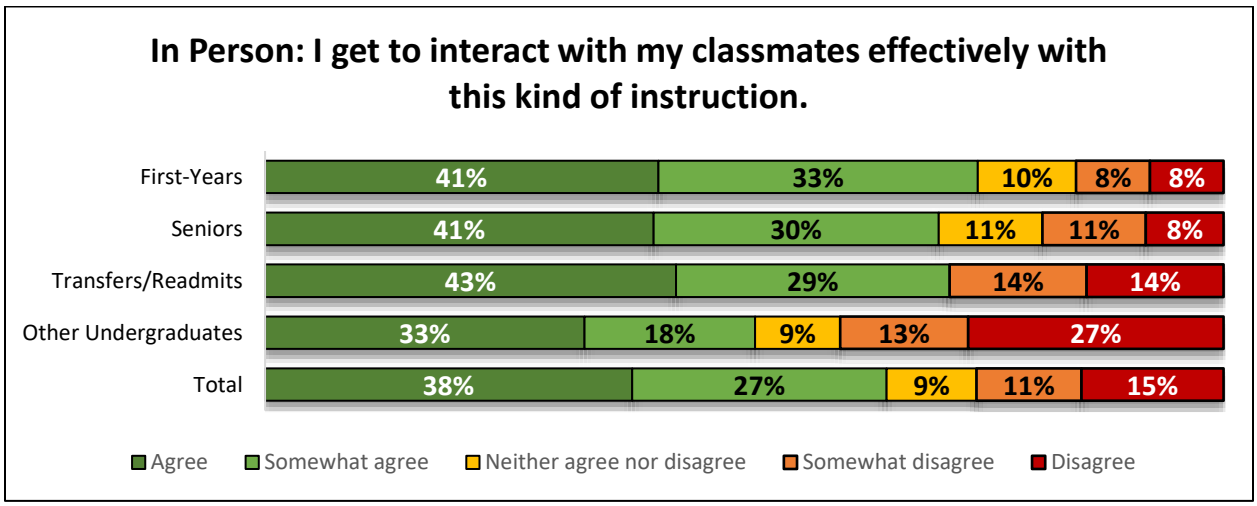
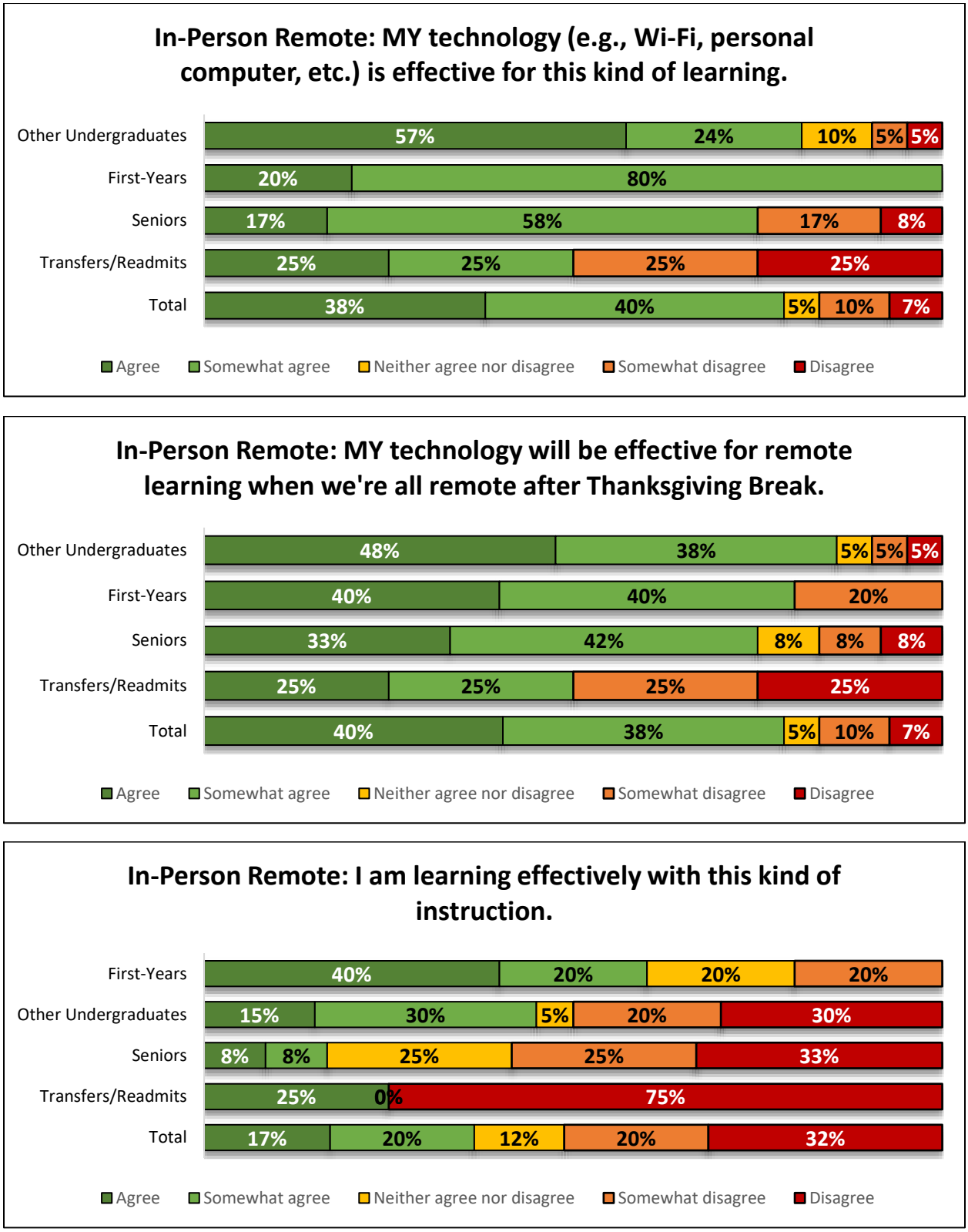




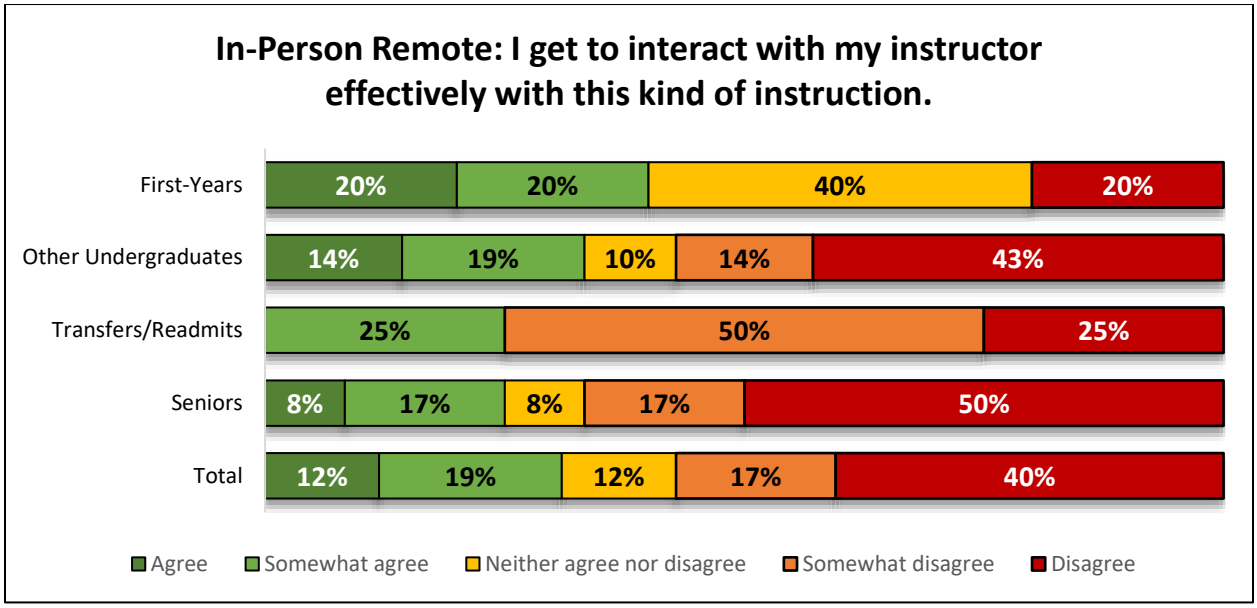


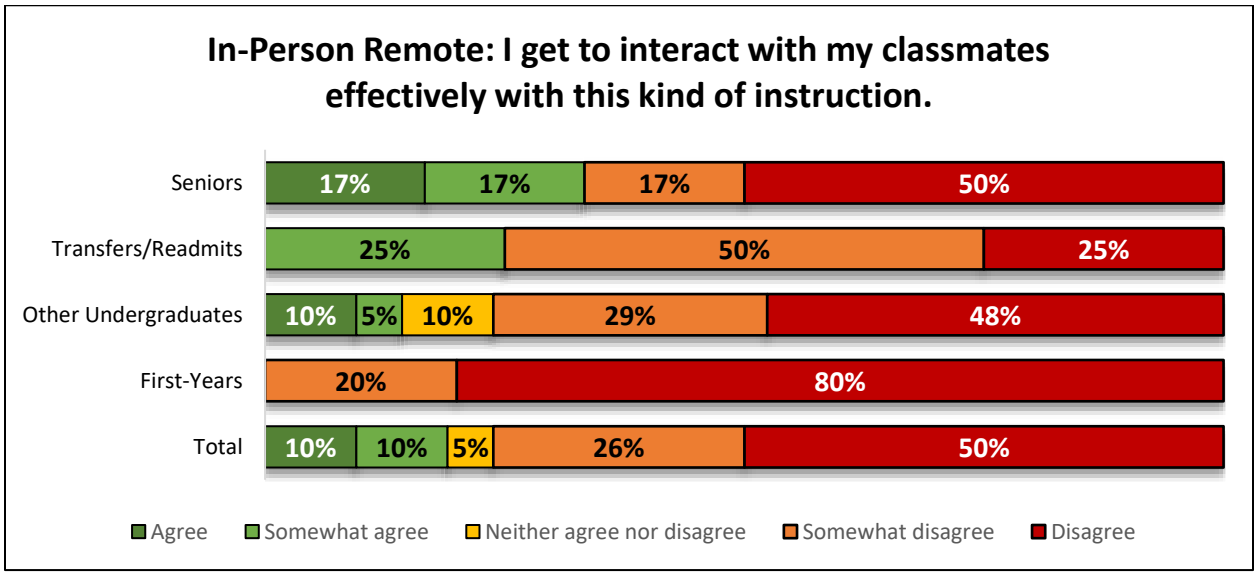
(UMaine Office of Institutional Research and Assessment, 10.19.20)

UM Undergraduate: In-Person Remote by Class Level



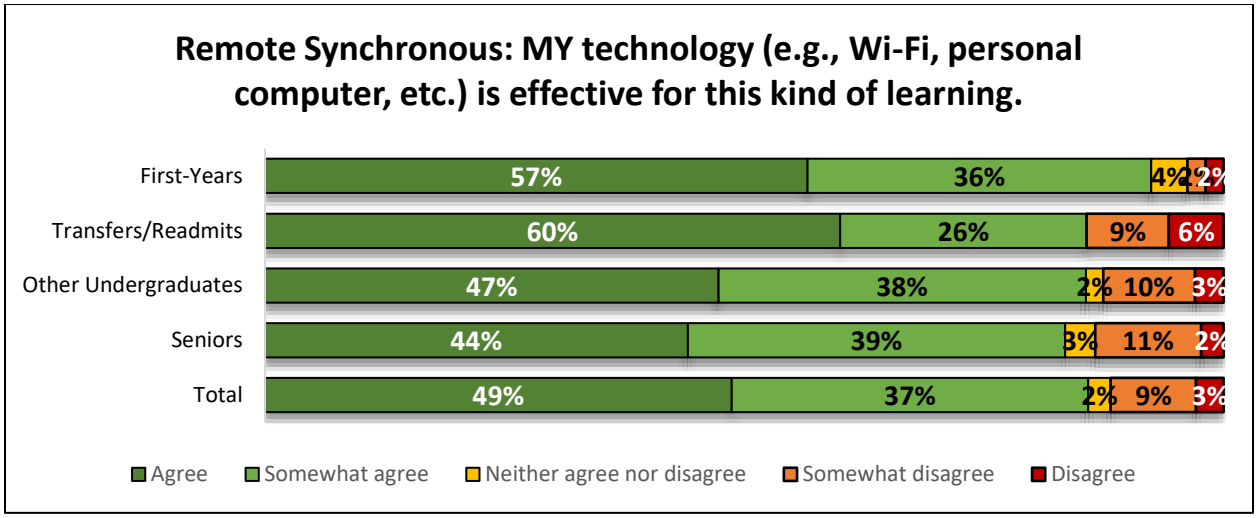
(UMaine Office of Institutional Research and Assessment, 10.19.20)

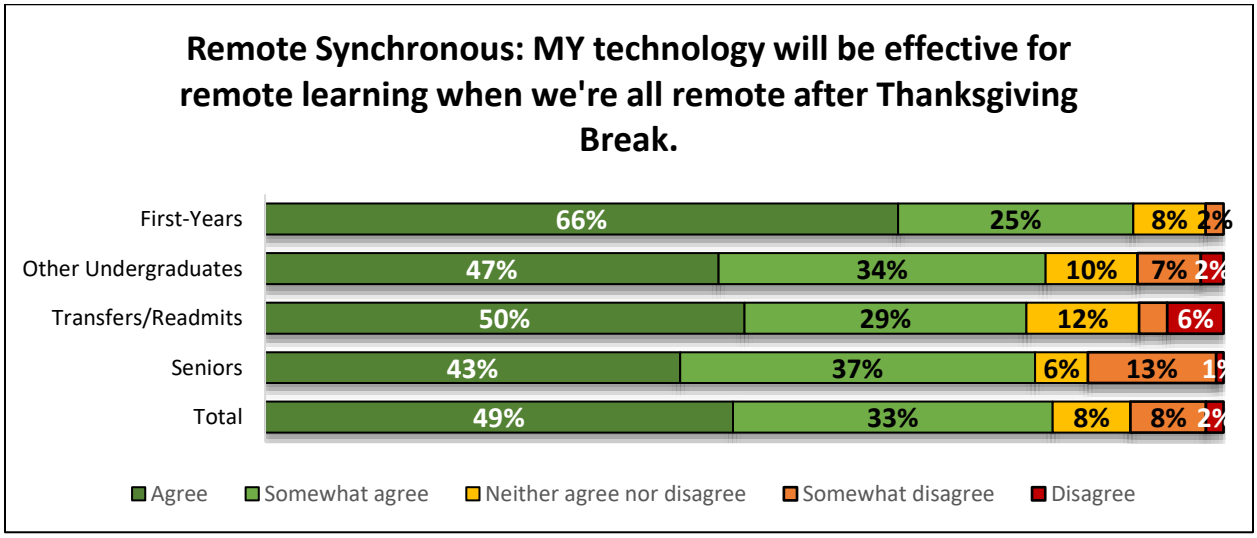


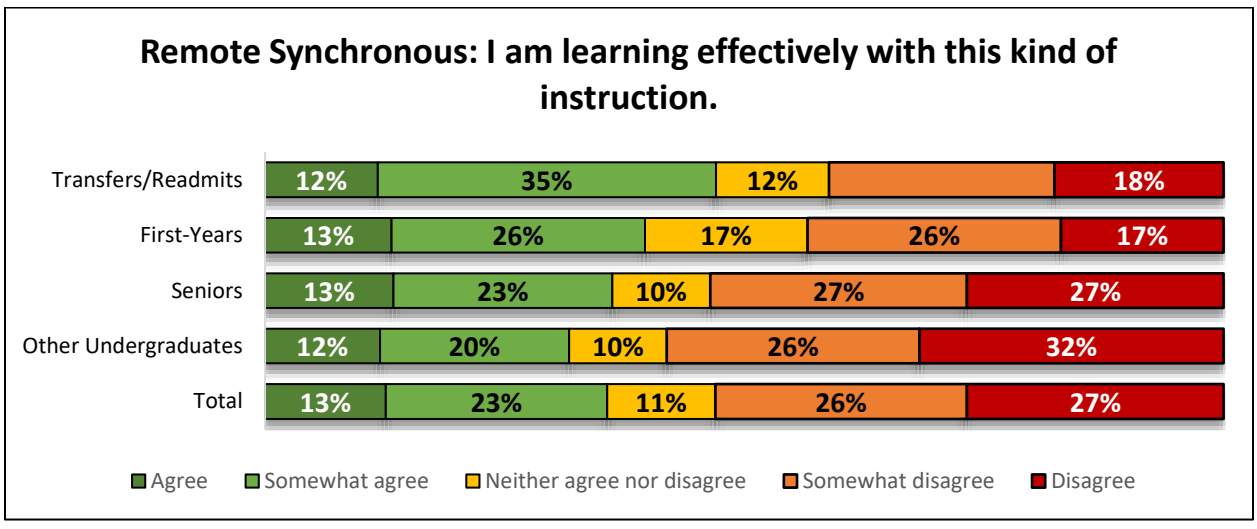


(UMaine Office of Institutional Research and Assessment, 10.19.20)

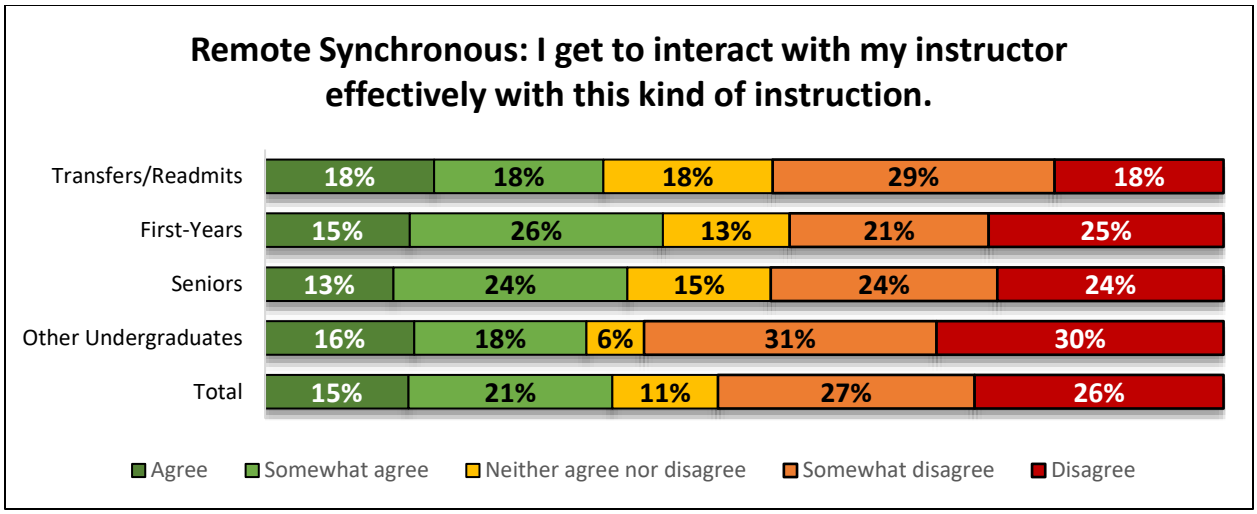
UM Undergraduate: Remote Synchronous by Class Level

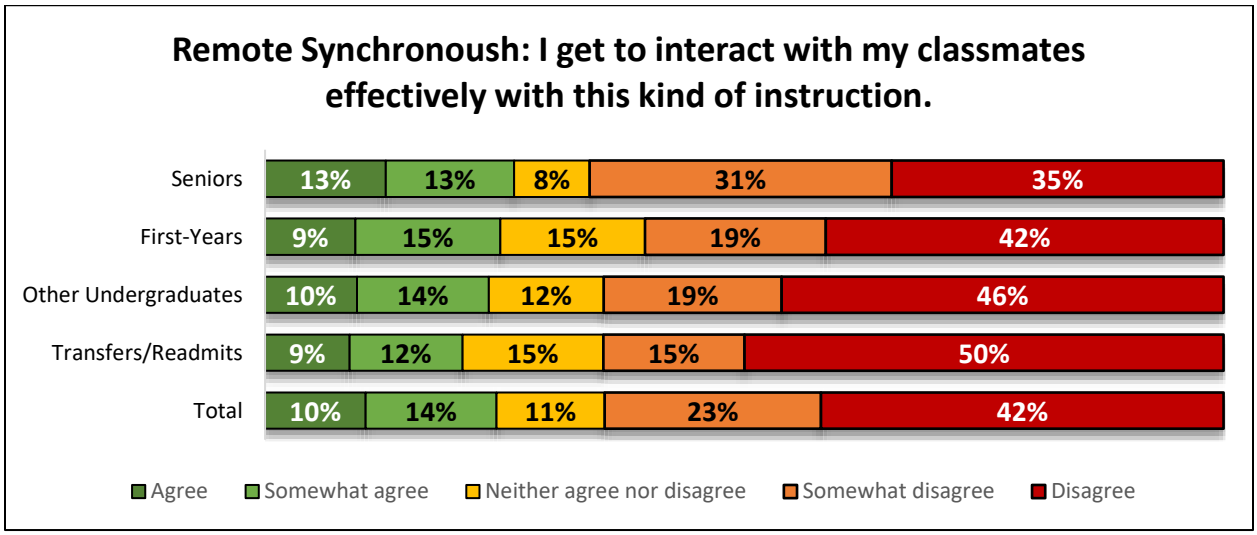






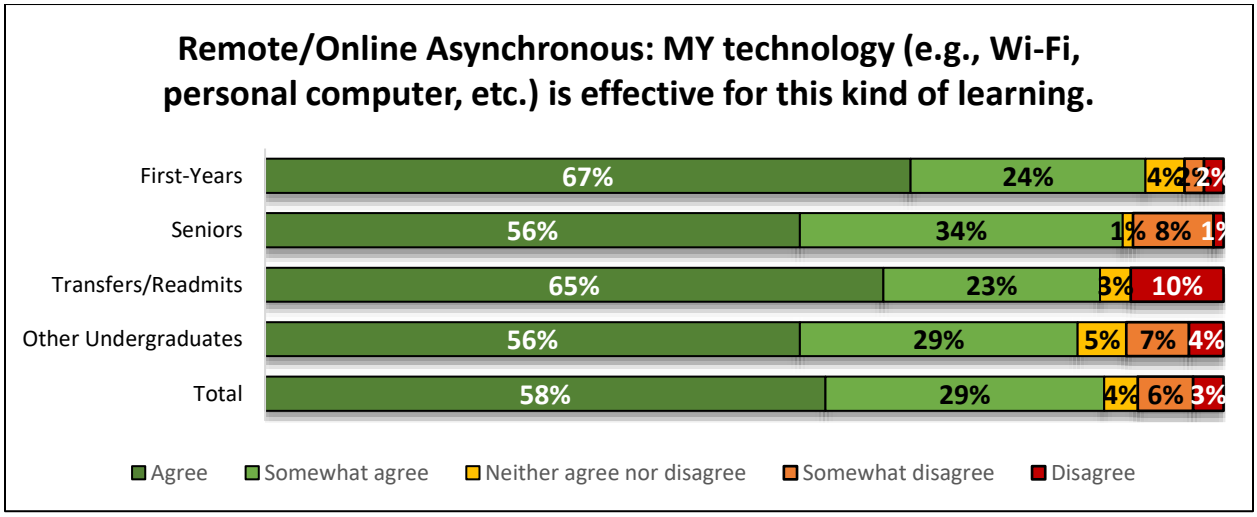
(UMaine Office of Institutional Research and Assessment, 10.19.20)

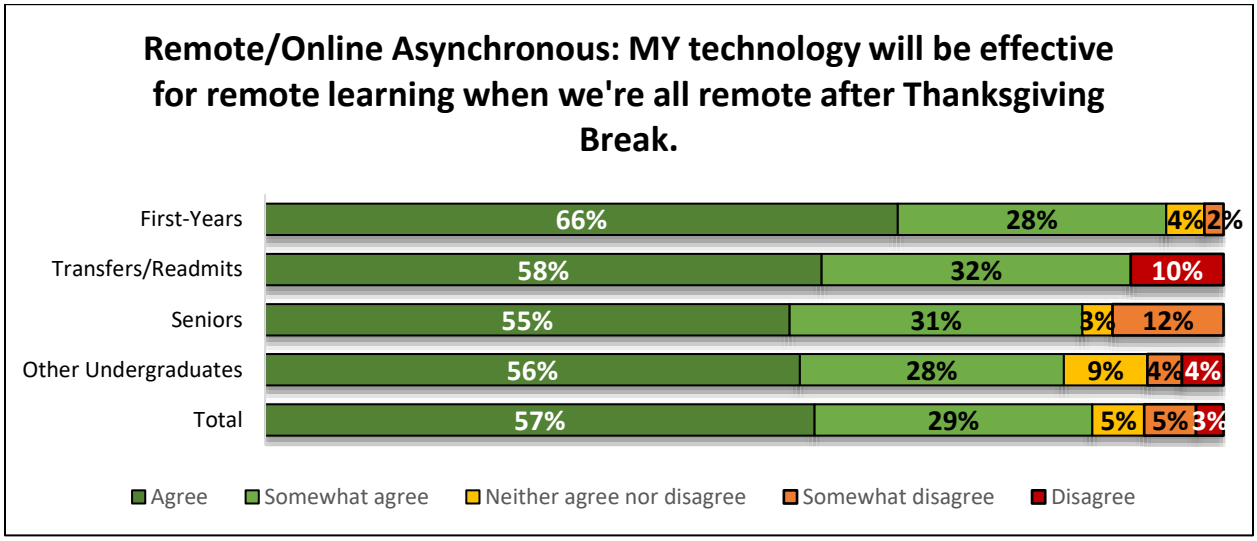


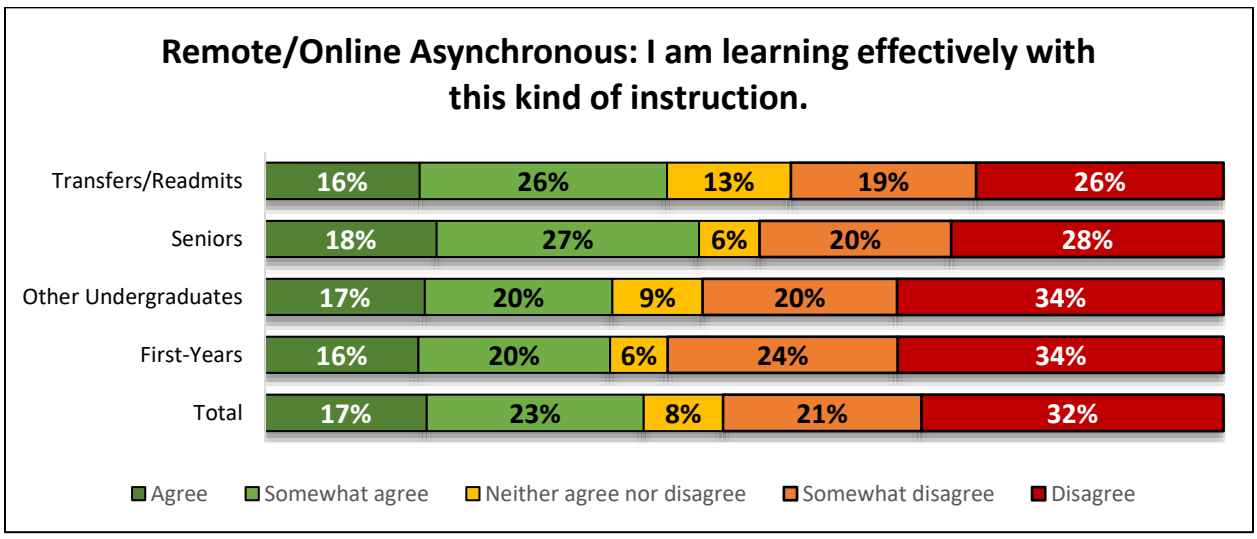


(UMaine Office of Institutional Research and Assessment, 10.19.20)

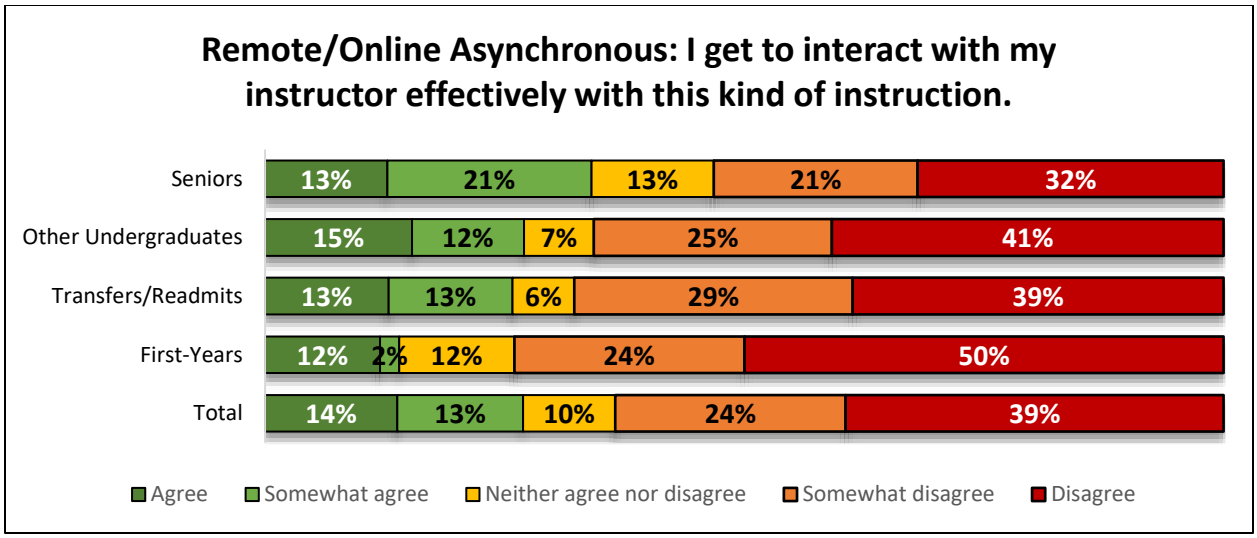
UM Undergraduate: Remote/Online Asynchronous by Grade Level

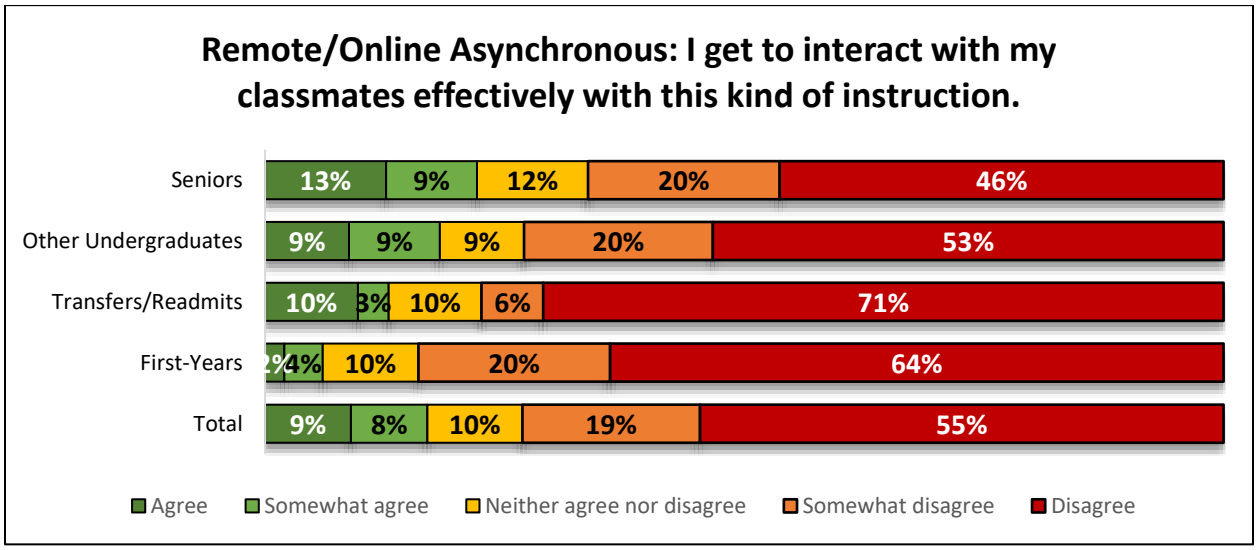






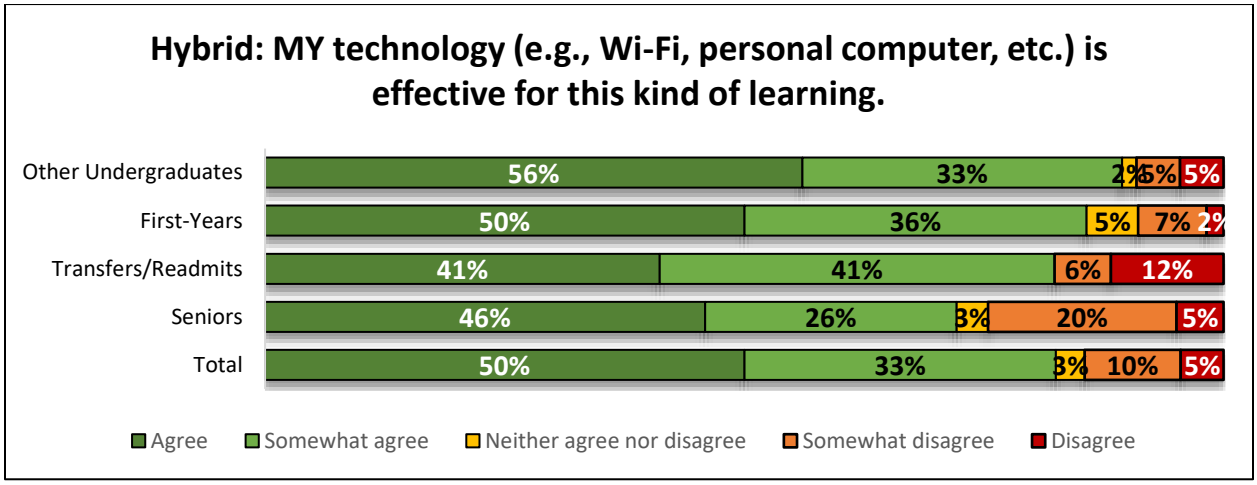
(UMaine Office of Institutional Research and Assessment, 10.19.20)

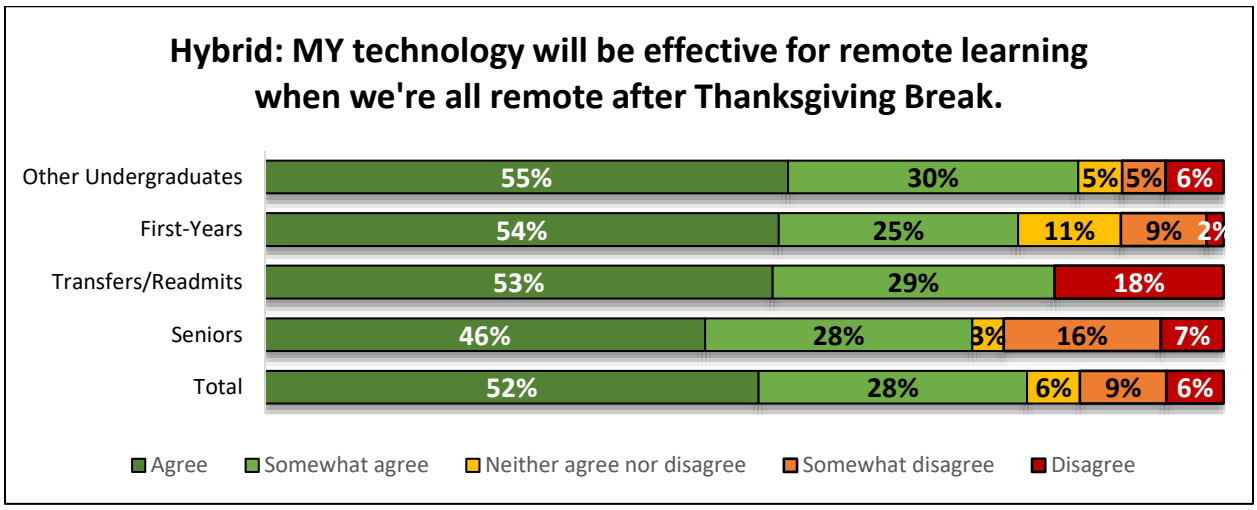


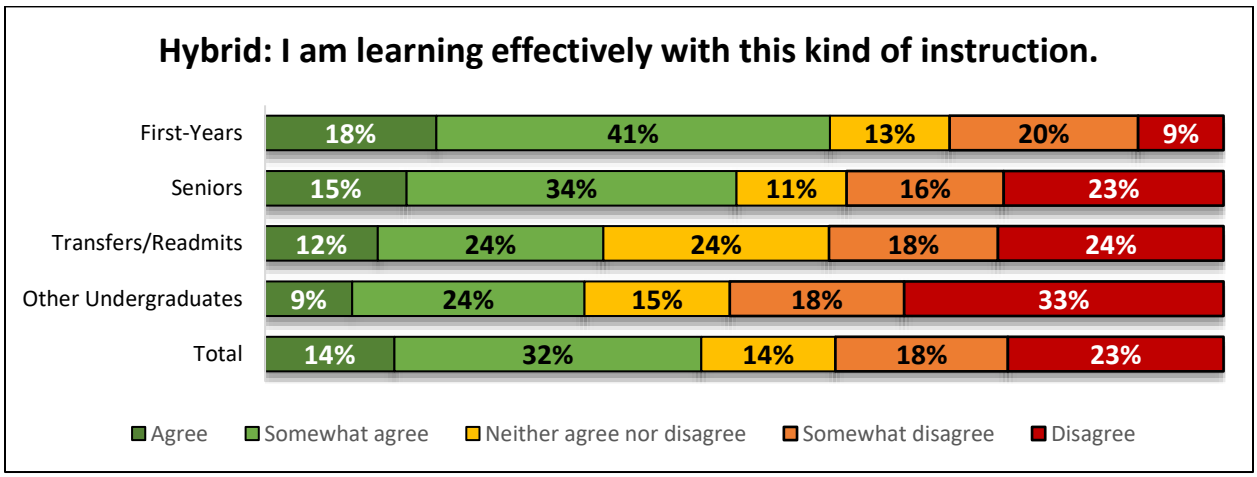


(UMaine Office of Institutional Research and Assessment, 10.19.20)

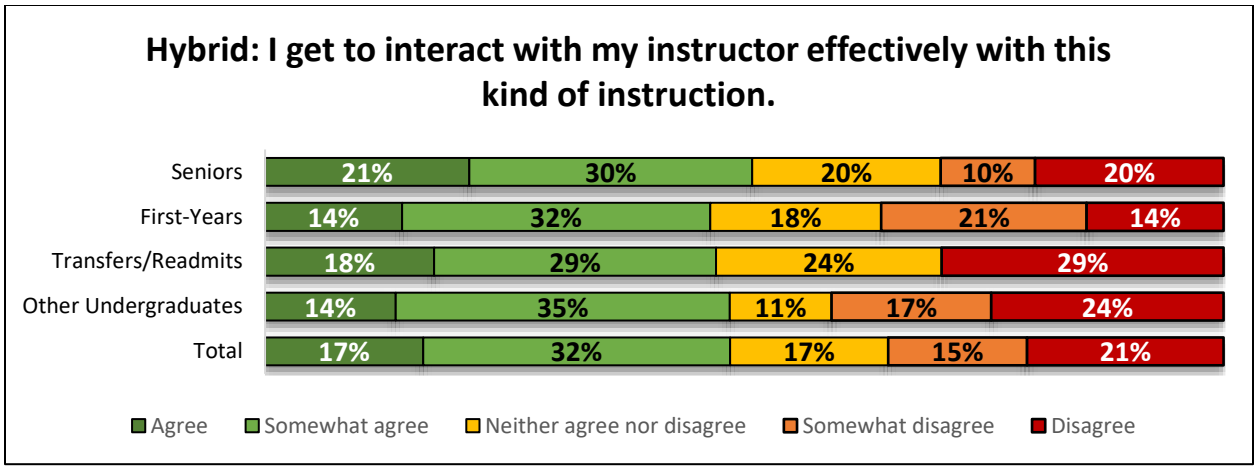
UM Undergraduate: Hybrid by Question and Class Level

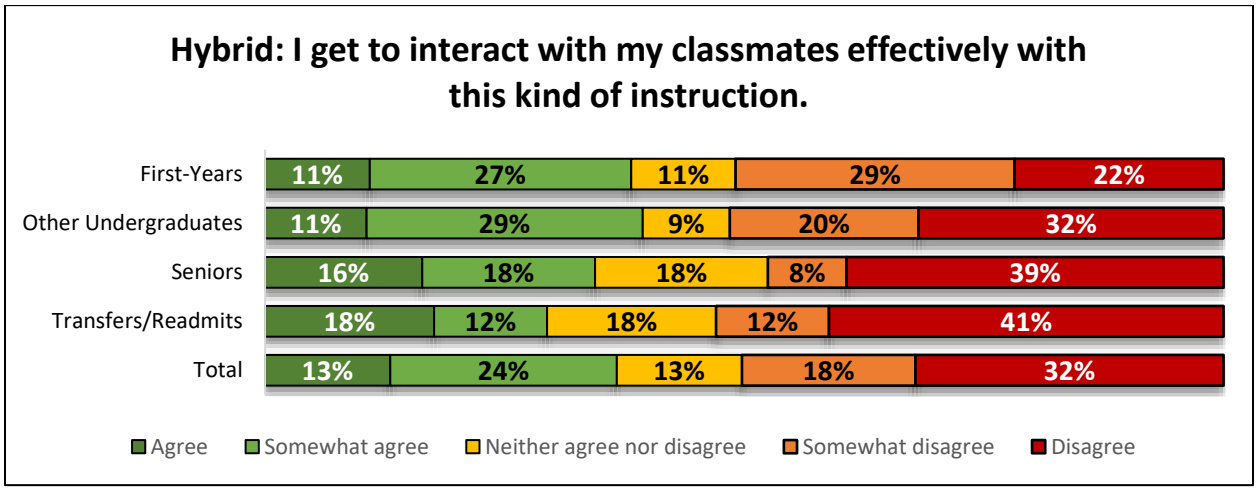






(UMaine Office of Institutional Research and Assessment, 10.19.20)





(UMaine Office of Institutional Research and Assessment, 10.19.20)

To: Interim Dean Teisl, College of NSFA, University of Maine
From: Kelley Strout, Director, School of Nursing
Re: Substantive Change Nursing Graduate Programs
Date: October 5, 2020

The School of Nursing aims to advertise our Master of Science Nursing Educator and Individualized tracks as online/hybrid programs. These tracks already exist at the University of Maine but are currently listed as on-campus/hybrid. The overall course delivery will remain the same. We are not creating new programs. These programs will not duplicate already existing programs at the University of Southern Maine but will provide increased access to advanced education for nurses living in Northern and Eastern Maine and will help ease a worsening nursing faculty shortage.

There is a national shortage of nurse educators, limiting the ability of Schools of Nursing to accept and graduate qualified BSN applicants. With adequate nursing faculty, Schools of Nursing can produce the numbers of entry-level registered nurses necessary to support the state's healthcare needs.

Our accrediting agency, The Commission on Collegiate Nursing Education, in the Standards for Accreditation of Baccalaureate and Graduate Schools of Nursing, standard II-E states, "Faculty teaching in the nursing program have graduate degrees."

The executive summary from 2018 Standards for Accreditation of Schools of Nursing explicitly states: "faculty" includes full-time, part-time, adjunct, tenured, non-tenured, or other faculty groups.

At the time of our accreditation site visit in February 2020, only 30% of the adjunct faculty (didactic, laboratory, and/or clinical) teaching in the School of Nursing had a master's degree or higher. Thus, the University of Maine School of Nursing is out of compliance with accreditation standards in our undergraduate program.

The University of Maine has challenges recruiting qualified faculty due to a lack of feeder doctoral programs and geographic location. A solution to this is to provide easy access for nurses in Eastern and Northern Maine looking to advance their education. In Maine, 8.4% of registered nurses ages 36-55 have an advanced degree, with 13.6% of those ages 55-65 having an advanced degree. Most nurses who hold Master's degrees in nursing are advanced practice nurses working as nurse practitioners, nurse midwives, or certified nurse anesthetists. 71% of working nurses with advanced degrees are over age 55. Thus, not only is there a current need for nurses with advanced degrees, it is anticipated that retirements will only add to the shortage.

It is not only Schools of Nursing that are looking for nurses with advanced degrees. The State of Maine offers 14 nursing programs. UMaine School of Nursing is a handful of schools in the state that can grant graduate degrees in nursing. However, the State Board of Nursing and national nursing accreditation agencies require every nursing faculty to hold a minimum of a master's degree in nursing. After discussions with other schools in the state, their percentage of adjunct

instructors who do not hold a master's degree in nursing is similar to UMaine (30%). They also need us to produce more masters prepared nurses to meet the state's demand for registered nurses. Healthcare facilities are also looking to increase the number of Master's prepared nurses in educator and administrative roles. Northern Light requires all nurses in education or executive roles to hold a master's degree or work toward earning a master's degree in nursing, at minimum.

There are many advantages to students by having a Master of Science program at the University of Maine. Even though the programs are online, both UMaine School of Nursing's Nurse Educator and Individualized tracks require a "clinical' immersion. The Essentials of Graduate Education require that all Master's level nurses "demonstrate development of clinical proficiency facilitated through the use of focused and sustained clinical experiences designed to strengthen patient care delivery skills, well as system assessment and intervention skills, which will lead to an enhanced understanding of organizational dynamics. These immersion experiences allow the student to focus on a population of interest or may focus on a specific role." These clinical immersion experiences are generally done in a healthcare facility local to the student's geographic residence.

Our relationship with Northern Light Eastern Maine Medical Center and St. Joseph Hospital will provide opportunities for students living in Eastern and Northern Maine to obtain this clinical immersion and access to active nursing research and evidence-based practice activity.

Additionally, students enrolled in the University of Maine Nurse Educator track work with the University of Maine faculty to complete their required practicum experience in education. Even though the students will complete coursework online, they can access professors and university resources face-to-face. These students are often adjunct faculty teaching laboratory and clinical courses for the School of Nursing. They will be able to take advantage of tuition waivers provided as part of their employment.

Advertising these programs as online/hybrid should increase applications due to flexibility and ease of access. Increased enrollment will increase revenue to the University of Maine. Thus supporting these substantive changes will benefit the University of Maine, the School of Nursing, and nurses looking to advance their education. Most importantly, increasing the supply of masters prepared nurses will improve health outcomes for the state's citizens and provide quality education in compliance with state and national accreditation regulations for undergraduate nursing students enrolled in nursing programs across the State of Maine.

Office of the Dean and Director
College of Natural Sciences, Forestry and Agriculture
Maine Agriculture and Forest Experiment Station

THE UNIVERSITY OF MAINE

5782 Winslow Hall
Orono, Maine 04469-5782
Tel: 207-581-3202
Umaine.edu/NSFA

October 9, 2020

Dear Executive Vice President for Academic Affairs and Provost Volin and
Associate Vice President for Graduate Studies and Senior Associate Dean Delcourt,

I strongly support the School of Nursing's (SON) plans to advertise their online/hybrid MS nursing degrees. During their recent accreditation the SON was deemed not in full compliance in that faculty teaching in the undergraduate nursing program are required to have a graduate degree (30 percent of the adjunct teachers in SON do not have a graduate degree).

The online/hybrid MS degrees provide a solution to this is problem while also providing easy access for nurses in Eastern and Northern Maine to advance their education.

Sincerely,

Mario Teisl,
Interim Dean and Director

Cc: Kelley Strout

Revised:
November 2010

UNIVERSITY OF MAINE SYSTEM
SUBSTANTIVE CHANGE TO AN EXISTING DEGREE PROGRAM

_____ Graduate Two-
_____ Year Four-Year
_____

(Institution Name) University of Maine

1. Title
   Degree: Master of Science
   Area: Nursing Education
   CIP Code:

2. Person Responsible for Planning
   Name: Patricia Poirier
   Department: Nursing
   Phone Number: 581-3009
   Address: 243 Dunn Hall

   Name: Kelley Strout
   Department: Nursing
   Phone Number: 581-2601
   Address: 210 Dunn Hall

3. **General Objective of Proposal**: We are planning to shift our Master of Science Nursing Education degree to a hybrid/online model

4. **Documented Evidence of Need**: There continues to be projected need for registered nurses. One limiting factor to increasing enrollment in schools of nursing is qualified faculty with advanced degrees, master's degree or higher. The agency that accredits schools of nursing mandates that all faculty, including laboratory and clinical adjuncts, that teach in a baccalaureate program have a master of science in nursing or higher. In Maine, 8.4% of registered nurses ages 36-55 have an advanced degree with 13.6% of those ages 55-65 having an advanced degree. Most nurses who hold master's degrees in nursing are advanced practice nurses working as nurse practitioners, nurse midwives, or certified nurse anesthetists rather than educators. 71% of working nurses with advanced degrees are over age 55. Thus, it is anticipated that there will be increased retirements with greater need for new faculty.

   There also is increased need for nurses with advanced degrees working as educators in healthcare facilities. These healthcare facilities are located throughout the state.

   By offering the Master of Science Nursing Education degree online, UMaine will

increase access to nurses seeking their master's degree in nursing regardless of their geographic location. Three of the required education courses are currently part of our online Graduate Certificate in Nursing Education. Students who enroll in this program could then move seamlessly into the Master of Science in Nursing Education program.

5. A. Which campuses, agencies, organizations, institutions or individuals have you involved in the program?

Name	Address	Individual Contact	Title

Fiona Libby, Director of Graduate Recruitment University of Maine
Amanda Cupp, UMaine Online Advisor, University of Maine

B. Which campuses, agencies, organizations, institutions or individuals do you plan to involve in the program?

Name	Address	Individual Contact	Title

Deborah Sanford, VP Nursing and Patient Care Services Northern Light Eastern Maine Medical Center

Mary Pryblo, MSN, President/CEO St. Joseph Hospital, Bangor Maine

C. How?

Northern Light Eastern Maine Medical Center and St. Joseph Hospital currently maintains strong working relationships with the School of Nursing for undergraduate education. We have begun conversations to increase accessibility to their nurses to work toward a Master of Science in Nursing to serve as adjunct clinical instructors and serve as advanced practice educators at their institutions.

6. What type and/or extent of support is presently available?

A. Personnel

Per the our national nursing accreditor and the Maine State Board of Nursing, nurses who teach in a Master of Science in Nursing program must hold a doctoral degree in nursing. The School of Nursing currently employs nine faculty who hold doctoral degrees in nursing. However, the majority of these faculty teach in the undergraduate program, which only requires a minimum of a master of science in nursing. Therefore, we could shift some of our doctorally prepared faculty to the graduate program and hire a lecturer to fill the needs in the undergraduate program. We anticipate 1-2 FTE lecturers required to increase enrollments in the MS-nurse educator program.

B. Facilities

All of the courses are already being taught in a hybrid/online format.

C. Equipment

D. Funding Sources E.

Library Resources F. Other

G. What additional new costs are required in any or all of the above categories?
Not applicable

7. Briefly describe preliminary plans for regular program evaluations, formative and summative.

Summative: This degree program would continue to be evaluated and accredited through the Commission on Collegiate Nursing Education (CCNE).

Formative: Student course evaluations would continue to be used as feedback.

8. **Time Frame**
Estimated Planning Time: currently ongoing
Estimated Implementation Time: We plan to implement this in time for the next cohort in January 2021.
Estimate of Program Lifetime: It is anticipated that there will continue to be a need for nursing educators thus the program will be viable for the foreseeable future.

9. COMPLETE FOR GRADUATE PROGRAM ONLY: On what other campus, if any, will this program be available? What plans are there to insure transferability from other campuses into this program or to deliver this program to other campuses?

The program will not necessarily be available on other campuses. However, the online degree program will support the other campus who need to increase numbers of nursing faculty with advanced degrees.

10. Other Pertinent Data and/or Information

As mentioned above, there is support from our local stakeholder, Northern Light Eastern Maine Medical Center to increase access to a master's degree for their nursing staff. We also will reach out to other healthcare facilities to provide them with information as well.

11. Submitted By:

Patricia Poirier 

9/14/2020

(Signatures of Person(s) Responsible for Program Plan) (Date)

Approved By:

(College Dean)
(Date)

(Associate Provost for Lifelong Learning)
(Date)

(VP for Research and Dean of the Graduate School) (Date)

(Provost)
(Date)

(President) (Date)

UNIVERSITY OF MAINE SYSTEM
SUBSTANTIVE CHANGE TO AN EXISTING DEGREE PROGRAM

_____ Graduate Two-
_____ Year Four-Year
_____

(Institution Name) University of Maine

1. Title
   Degree: Master of Science
   Area: Individualized Concentration
   CIP Code:

2. Person Responsible for Planning
   Name: Patricia Poirier
   Department: Nursing
   Phone Number: 581-3009
   Address: 243 Dunn Hall

   Name: Kelley Strout
   Department: Nursing
   Phone Number: 581-2601
   Address: 210 Dunn Hall

3. **General Objective of Proposal**: We are planning to shift our Master of Science Nursing Individualized Concentration to a fully online model

4. **Documented Evidence of Need**: There continues to be a need for more nurses with advanced degrees in all areas of nursing. Nurses working in healthcare settings in a variety of roles e.g. administration, school nursing, public health are being increasingly encouraged to obtain a minimum of a master's degree. In Maine, 8.4% of registered nurses ages 36-55 have an advanced degree with 13.6% of those ages 55-65 having an advanced degree. Most nurses who hold master's degrees in nursing are advanced practice nurses working as nurse practitioners, nurse midwives, or certified nurse anesthetists. 71% of working nurses with advanced degrees are over age 55. Thus, it is anticipated that there will be increased retirements with a greater need for new nurses with advanced degrees.

   By offering the Master of Science Nursing Individualized Concentration degree online, UMaine will increase access to nurses seeking their master's degree in nursing regardless of their geographic location.

5. **A. Which campuses, agencies, organizations, institutions or individuals have you involved in the program?**

Name	Address	Individual Contact	Title

Fiona Libby, Director of Graduate Recruitment University of Maine

Amanda Cupp, UMaine Online Advisor, University of Maine

B. Which campuses, agencies, organizations, institutions or individuals do you plan to involve in the program?

Name	Address	Individual Contact	Title

Deborah Sanford, VP Nursing and Patient Care Services Northern Light Eastern Maine Medical Center

Mary Pryblo, MSN, President/CEO St. Joseph Hospital, Bangor Maine

University of Southern Maine, Nursing and Masters' of Public Health Programs

C. How?

Northern Light Eastern Maine Medical Center and St. Joseph Hospital currently maintain strong working relationships with the School of Nursing for undergraduate education. We have begun conversations to increase accessibility to their nurses to work toward a Master of Science in Nursing.

Several courses to meet individualized needs such as administration and public health are currently available at the University of Southern Maine campus. We will continue conversations with those programs to increase collaboration.

6. What type and/or extent of support is presently available?

A. Personnel

Per our national nursing accreditor and the Maine State Board of Nursing, nurses who teach in a Master of Science in Nursing program must hold a doctoral degree in nursing. The School of Nursing currently employs nine faculty who hold doctoral degrees in nursing. However, the majority of these faculty teach in the undergraduate program, which only requires a minimum of a master of science in nursing. Therefore, we could shift some of our doctorally prepared faculty to the graduate program and hire a lecturer to fill the needs in the undergraduate program. We anticipate 1-2 FTE lecturers required to increase enrollments in the MS-individualized concentration. The MS-individualized option provides opportunities for nurses to specialize their focus in areas beyond nursing education, while also meeting the degree requirements to teach for schools of nursing across the State of Maine and beyond.

B. Facilities

All of the courses are already being taught in a hybrid/online format.

C. Equipment

D. Funding Sources E. Library

Resources F. Other

G. What additional new costs are required in any or all of the above categories?
Not applicable

7. Briefly describe preliminary plans for regular program evaluations, formative and summative.

Summative: This degree program would continue to be evaluated and accredited through the Commission on Collegiate Nursing Education (CCNE).

Formative: Student course evaluations would continue to be used as feedback.

8. **Time Frame**
Estimated Planning Time: currently ongoing
Estimated Implementation Time: We plan to implement this in time for the next cohort in January 2021.
Estimate of Program Lifetime: It is anticipated that there will continue to be a need for nurses with advanced degrees thus the program will be viable for the foreseeable future.

9. COMPLETE FOR GRADUATE PROGRAM ONLY: On what other campus, if any, will this program be available? What plans are there to insure transferability from other campuses into this program or to deliver this program to other campuses?

The program will not necessarily be available on other campuses. However, the online degree program will support the other campus who need to increase numbers of nursing faculty with advanced degrees.

10. Other Pertinent Data and/or Information

As mentioned above, there is support from our local stakeholder, Northern Light Eastern Maine Medical Center to increase access to a master's degree for their nursing staff. We also will reach out to other healthcare facilities to provide them with information as well.

11. Submitted By:

Patricia Poirier

9/14/2020

(Signatures of Person(s) Responsible for Program Plan) (Date)

Approved By:

(College Dean)
(Date)

(Associate Provost for Lifelong Learning)
(Date)

(VP for Research and Dean of the Graduate School) (Date)

(Provost)
(Date)

(President) (Date)

October 7, 2020

To: Graduate Board

From: Doug Bousfield, Graduate Coordinator, Chemical and Biomedical Engineering.

Subject: Approval of accelerated program for MS degree in Biomedical Engineering

The department has decided that it wants to offer and promote an accelerated program for students to obtain a MS degree in Biomedical Engineering. The key idea is to have an opportunity for motivated students to gain research experience and an advanced degree in an efficient manner that will improve their position to apply for industrial R&D jobs, professional schools such as medical school, and PhD graduate programs. The degree requirements for the current MS degree will not change, but students will be allowed to double count nine credits towards both the BS and MS degrees.

One unique aspect of this program is that students will start research activities before their senior year, interacting with faculty and other graduate students. Students who are accepted in the program will be involved in research over their senior year and are expected to continue research activities right after graduation with the BS degree.

One other unique aspect is that the specific classes that are double counted will be flexible and will selected by the student and the research mentor. These classes need to be approved by the graduate committee. The reason for this aspect is that faculty have a wide range of research activities that can benefit from students with different skill sets. For example, students interested in breast cancer detection from image analysis would benefit from taking early image analysis classes while students interested in optics need different classes. This flexibility in course selection should be of interest to the students and the faculty.

The procedure and more detail are below. The proposed application form for the student is also attached. We hope to hear back from the graduate board soon.

Accelerated Program for the Masters of Science Degree in Biomedical Engineering

The Chemical and Biomedical Engineering Department offers the opportunity for students to earn a Bachelors degree (BS) and a Masters degree (MS) in Biomedical Engineering in an efficient manner.

The major advantage in pursuing a combined BS/MS program is that the student be able to count nine course credits taken during their undergraduate senior year toward both degrees. Furthermore, the cost needed to earn the MS degree is reduced because students pay undergraduate tuition rather than graduate tuition for the double-counted courses taken. We expect this program will be attractive to our students because they are able to obtain an advanced degree in an efficient manner.

Core Program Requirements

Students will apply in the program by the end of the spring semester of the Junior year. Students will have to identify a faculty mentor that is willing to work with them, have a GPA of over 3.25, and propose the classes that will double count towards both degrees identified and approved.

During the senior year, students take nine graduate-level course credits at the 400 and 500-level that will count towards technical electives for the undergraduate degree, but will also count towards the MS degree; three of these credits must be a 500 level course. Students will be required to be involved in research in the mentor's lab and to give a seminar on the research work spring semester of their senior year.

It is expected that students will start their graduate program the summer after graduation. All requirements of the standard MS degree still need to be satisfied.

Procedure and Guidelines

1) By the end of spring semester Junior year, students need to apply to the departments graduate coordinator to be in this program. The application should identify the research mentor and indicate some commitment to the mentor and the research area. Students must have a GPA of 3.25 or higher. The application must include a brief recommendation letter from the potential mentor, a draft program of study, and an essay about the reason for the student's interest in the program. Application template is attached.
2) Applications will be reviewed by the graduate committee in communication with identified mentors.
3) Students are expected to participate in research throughout their senior year. Students with poor progress may be not admitted into the graduate level program. Students will be encouraged to take BEN 396 Research Experience, Honors

research, or another course that gives undergraduate research experience as a technical elective. In addition, students will be required to take CHE 696 Graduate Seminar during the spring semester of their senior year that will count towards the MS degree. Students are also welcome to take extra classes during their undergraduate time that can count towards the MS degree.

4) Students will be allowed to count **nine** credits towards both BS and MS degree.
5) The classes that will double count must be 400 or 500 level. These classes will count towards the technical elective requirement of the BS degree and towards the MS degree. Students must take at least one 500 level class. The selection of the technical electives should be made in coordination with the research mentor.
6) Students are expected to start summer semester after their BS degree taking thesis research credits.
7) Assistantships for students will be awarded on a competitive basis. A limited number of students will be awarded an assistantship.

Applications should be sent to:

Graduate Coordinator, Chemical and Biomedical Engineering Department

Admission Decisions

Admission decisions are made by the Graduate Committee of the Department.

APPLICATION OF INTENT TO APPLY TO THE **ACCELERATED PROGRAM** FOR THE MASTERS OF SCIENCE DEGREE IN **Biomedical Engineering** AT THE UNIVERSITY OF MAINE

Contact: Doug Bousfield, Graduate Program Coordinator,

Jenness Hall, bousfld@maine.edu

NOTICE: This form is an internal departmental application to be considered for admission to an accelerated option at the University of Maine .

Students must apply to this track before the end of their junior year and to the Graduate School during their senior year. Once accepted into this track, students may take up to nine credits of graduate coursework beginning in their senior year. The credits will be transferred to the student's graduate record upon formal admission to the Graduate School.

Name_____ MaineStreet ID _____

(Family Name) (First) (Middle)

Maiden name or other names under which records may be filed_____

Mailing Address_____

(Street) (City, State) (Zip Code) (Country)

Phone Number _____ E-mail_____

Date of Birth_____

Semester you expect to take first graduate course? _____

Current undergraduate degree you are seeking: **Biomedical Engineering**

Proposed graduate program of study: **Biomedical Engineering**

List in chronological order all institutions of collegiate standing, and location, that you have attended. Include dates of entering and leaving degrees received or for which you are a candidate. The department will access transcripts from the University of Maine.

Name of Institution	Dates Attended	Major	Name of Degree or Diploma	Date Degree Received or Expected

Cumulative undergraduate average on a 4.0 scale (A=4):_____.

List any honors, prizes or scholarships previously awarded to you on the basis of academic achievement, or any honor societies to which you have been elected.

_____
_____
_____

List any employment or other activities related to your current undergraduate program or the proposed graduate program of study. If you have taught, name subjects.

_____
_____-
_____

In the space below, compose a brief essay (300-500 words) to be read by the **Graduate Faculty Admissions Committee** that describes your academic and personal intentions and objectives. Identify the faculty member that would be your mentor and advisor for the graduate degree.

Signature_____ Date_____

IMPORTANT NOTIFICATIONS:

Admission decisions for the accelerated program cannot be made until the complete application is received. All application materials become part of the permanent records of the University of Maine and are not returned. It is your responsibility to keep copies and be sure your application materials are complete and have all been received by the Graduate Program Coordinator.

In complying with the letter and spirit of applicable laws and in pursuing its own goals of pluralism, the University of Maine shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, national origin or citizenship status, age, disability, or veterans status in employment, education, and other areas if the University. The University provides reasonable accommodations to qualified individuals with disabilities upon request. Questions and complaints about discrimination in any area of the University should be directed to the Director of equal Opportunity, 101 N. Stevens, 207-581-1226. Inquiries about discrimination may also be referred to the Maine Human Rights Commission, U.S. Equal Employment Opportunity Commission, Office for Civil Rights for U.S. Department of Education or other appropriate federal or state agencies.

Accelerated Program Timeline

Junior Year:

Student will submit an application to the department signifying their intention to pursue an accelerated graduate program at the University of Maine.

Program will review application and send student a letter informing him/her of admission status (copying Graduate School).

Senior Year:

Student completes at least nine credits of prescribed graduate level coursework.

Student submits formal application to the Graduate School.

Graduate program and Graduate School review application. Graduate School sends admission letter in consultation with graduate program coordinator. Acceptance by the Graduate School constitutes admission to the Graduate School and to the accelerated program.

Graduate Status

Student completes graduate course work within 15 months of acceptance to Graduate School.

Student completes the program of study that shows nine credits of classes taken as an undergraduate to include in the 30 credits requires.

nod

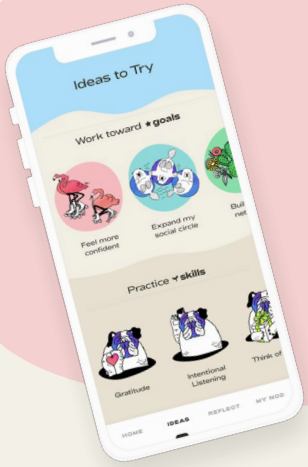
HOPELAB
GRIT DIGITAL HEALTH

An App to Combat the Negative Impact of Loneliness on College Student Mental Health

Be prepared to address loneliness amidst shifting learning environments

WHY—Loneliness is a significant factor contributing to student attrition, poor mental health, and substance abuse on college campuses. A recent national survey by the insurer Cigna reports 79% of GenZ youth (18-22) are loney. We believe that with the right support, loneliness can be prevented.

HOW—Nod is an app that empowers students to build authentic social connections as part of a successful college experience. Nod addresses the psychological underpinnings of loneliness using skill-building challenges and personal reflection exercises to break social goals down into achievable steps.



A research-backed app with a ready to go promotional kit.

The Nod app comes with a toolkit that engages the whole campus with ready to go promotional materials, a playbook for student leaders/peer educators, and effective social and digital promotion assets that will support your efforts to help students find their people and their place in your campus community.

LEARN MORE AT HEYNOD.COM

Nod's interactive tips and tools are designed to support students across different learning environments including: on campus, hybrid, and fully remote.

Students are struggling and asking leaders for coping resources.

New data from an Active Minds survey of 2,086 college students show students are finding it difficult to cope during the pandemic, and that they would like higher education leaders to provide more support resources.

As students return to classes it will be critical to foster a culture of connection and provide easy access and scalable tools that support student social and mental well-being.

Nod is designed to help students thrive in today's physically distanced world.

nod

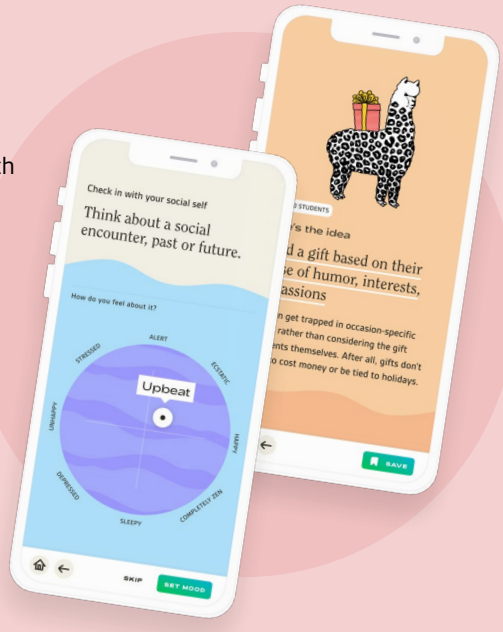
An app that empowers students to build the authentic social connections they want and need to be successful in college

EFFECTIVE

Nod was tested in a randomized controlled study and showed promising efficacy. Nod use buffered the most psychologically vulnerable students from experiencing loneliness and depression during the first month of college. Contact our team to learn more about the results which are currently under review for peer-reviewed publication.

ENGAGING

Nod is engaging because everything in the app was co-developed with students. From the skill-building challenges to the brand design and quirky animal illustrations, students were at the core of Nod's design



Students like

GETTING NEW IDEAS

"Nod allows me to think of ways to interact with people that I probably wouldn't have thought of on my own. It opens more opportunities for me."

GAINING PERSPECTIVE

"I like the reflections portion, because it's nice to get certain situations off my chest in a constructive way."

CREATED IN PARTNERSHIP BY:

GRIT DIGITAL HEALTH

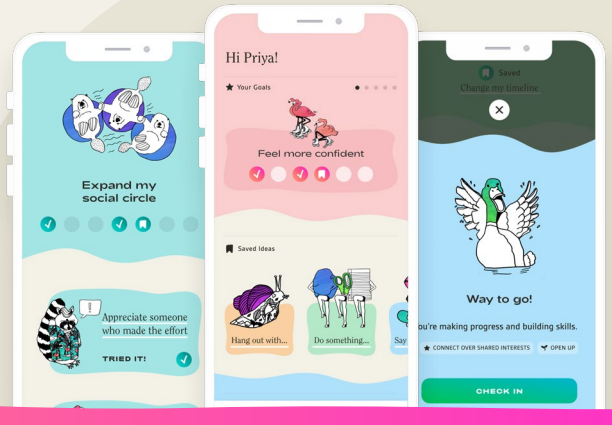
Grit Digital Health creates behavioral health and well-being solutions through design, innovation and technology.

HOPELAB

Hopelab is a social innovation lab that creates behavior-change tech to help teens and young adults live happier, healthier lives

Learn more about Nod!

REQUEST A DEMO



Nod App:

Essentially, it is an app that would be connected with the UMaine students to promote and encourage socialization and decrease loneliness and isolation. It has been updated to reflect COVID precautions and is an interactive way to engage in social "challenges" and then reflect on how they went and how you felt about it.

Pricing: Year 1 - $10,000 Annually + $3,000 a One-time Customization Fee = $13,000

Other Information:

- Run by Hopelab and Grit Digital Health. They also run YouatCollege.com which has a lot of self help tools.
- They've done a randomized control trial at the University of Oregon
- Data from studies conducted:
    - 49.9% of people aged 18-22 feel lonely.
    - 30 % of people have felt very lonely in the last 2 weeks
    - 67% of people have felt very lonely in the last year
    - Since COVID-19:
        - 91% of people felt an increase in stress and anxiety
        - 80% of people felt more lonely
        - 63% of people find it more difficult to connect with others
- The app is aimed at improving social connection and decreasing loneliness
- There are 5 principles of the app to build connections
    - Realistic Expectations (Getting rid of the myth of magical friendship)
    - Believing in the ability to grow
    - Taking Risks
    - Focusing your attention towards others
    - Apply a compassionate lens (towards others and self)
- The app is broken down into 3 major parts
    - Testimonials
    - Ideas
    - Reflections
- Ideas are composed of things such as acts of kindness, gratitude, active listening, inviting or initiating, and self-disclosure.
- They use "awkward imagery" to reflect back the awkwardness that increasing social connection can cause.
- They have several ways of marketing both on campus and on social media that are made for you and your University. They have a marketing team that helps with marketing the app to widespread use across campus.