

Graduate Program in Oral Biology
Student & Faculty Handbook
2015-16

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Inquiries regarding compliance may be directed to the Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455, (612) 624-9547, eoaa@umn.edu. Website at www.eoaa.umn.edu.

This handbook includes accurate information as of August 2015. Always consult with the Director of Graduate Studies to ensure you have the most recent program information.

I. Program Overview

The Graduate Program in Oral Biology is the only PhD program in the University of Minnesota's School of Dentistry. The Graduate Faculty in Oral Biology hold appointments in many schools and departments across the University and offer a wide range of expertise in various disciplines within oral biology. Training leading to the MS and PhD degrees is designed to provide students who seek academic and research careers with a broad understanding of the development, structure, function, and pathology of the orofacial region. Advanced coursework and research emphasizes more specialized areas of interest including, but not limited to, biomaterials and biomechanics, epithelial biology and carcinogenesis, microbiology and immunology, sensory neuroscience, and bone biology, craniofacial development and tissue engineering. Students enjoy considerable flexibility in planning their programs to accommodate specific areas of interest. Guidelines will suggest programs of study that will enable completion of the PhD degree in 4 years. Graduates are prepared for employment in dental schools and centers of biomedical research in universities, industry, and within government agencies.

Research facilities are excellent with well-equipped laboratories. The program is centered in the School of Dentistry, which is part of a major health sciences complex. Faculty laboratories are located throughout the University and house state-of-the-art equipment to support contemporary investigations in all of the specialized areas of research. Core facilities are also available for flow cytometry, genomics, proteomics, capture and analysis of biological images, and biomedical computing, to name a few. Excellent animal facilities are available. For translational and clinical research, large patient populations are available for study.

The Graduate Program in Oral Biology is directed by its faculty. The Graduate Faculty in Oral Biology elect a Director of Graduate Studies (DGS) to lead the Program. The DGS consults regularly with the Graduate Faculty and its Steering Committee. The DGS serves a three-year term, as do Steering Committee members. Discussion of faculty membership and responsibilities appears below in section VIII.

Daily operations of the Graduate Program in Oral Biology are handled by the DGS Assistant and a part-time student worker. The DGS Assistant serves as the first point of contact for all current and prospective students, oversees all paperwork and program requirements, coordinates the annual admissions and review processes, and maintains accurate student and program records.

The DGS reports to the School of Dentistry's Associate Dean for Advanced and Graduate Education. The Dean of the School of Dentistry has ultimate responsibility for the Program, faculty, and students.

II. Program Components

The Graduate Program in Oral Biology offers a PhD degree and an MS degree. The PhD in Oral Biology is primarily a research degree and the thesis research constitutes a major part of the student's program. The program is designed to ensure that graduates will develop the capability to initiate independent research programs in important areas of oral biology. Most students execute projects that advance mechanistic understanding. Clinical studies, or studies involving

adaptation of existing technologies to a dental problem, are not regarded as appropriate projects in this program.

The PhD in Oral Biology is designed as a 4-year program. Students are encouraged to focus in one of five areas of emphasis: biomaterials and biomechanics, epithelial biology and carcinogenesis, microbiology and immunology, sensory neuroscience, and bone biology, craniofacial development, and tissue engineering. An exceptional student can create his/her own area of emphasis or specialize in topics not listed here; students should discuss their interests with the Director of Graduate Studies before applying.

The first year of the PhD program consists primarily of a core curriculum recommended by the Graduate Faculty for each area. The core curriculum provides students with a working knowledge of the major concepts and research paradigms in that scientific area, a working vocabulary, and the basis for continued learning. During the first year, the graduate student also selects a laboratory, a research advisor and a cutting-edge research problem for investigation and thesis preparation. During months 13 through 15 in residence, the student writes a major research thesis proposal, which will be defended in writing by month 16. The written and oral exams must capture the student's ability to think critically about the field and the application of logical experimental designs to test hypotheses and answer questions. During month 18, students present a brief research seminar consisting of the plan for thesis research and preliminary data to evaluate the promise of success in the lab. Upon completion of this two-part preliminary examination of the thesis proposal, the student will work largely on thesis research through month 45 in residence. Months 45 through 48 will be used for dissertation writing. Students must also present a public seminar describing their thesis research (which is attended by the final oral exam committee) no later than six months before defense of the thesis. The dissertation will be defended in another public seminar in month 48.

The MS degree program is intended for students who are already engaged in research and academic careers. The MS is designed to enhance knowledge and training for research professionals not intending to engage in independent research. The MS degree must be taken as Plan A (with thesis) and may be completed in 2 years. An MS is not required to enroll in the PhD program. As with the PhD, MS students are encouraged to focus in one of five areas of emphasis: biomaterials and biomechanics, epithelial biology and carcinogenesis, microbiology and immunology, sensory neuroscience, and bone biology, craniofacial development, and tissue engineering.

III. PhD Degree Requirements

The *Graduate School Catalog* contains detailed information concerning registration, degree requirements, program and thesis registration, and other procedures and deadlines. The Director of Graduate Studies (DGS) and the student's advisor will assist the student in complying with Graduate School procedures, but **it is the student's responsibility to meet all requirements and deadlines**. The *Graduate School Catalog* may be viewed online at <http://www.catalogs.umn.edu/grad/index.html>.

A. Coursework

Maintaining Active Status

ALL Graduate School students are required to register in the Graduate School every fall and spring term in order to maintain active status. Maintaining active status is critical and is required in order to participate in the University community as a Graduate School student. Participating in the University community includes registering for coursework, taking examinations, submitting milestone forms, or filing for graduation. Students not registered every fall and spring term are considered to have withdrawn; their Graduate School records are deactivated. Those who wish to resume graduate work must request readmission to the Graduate School (and if readmitted, must register) to reactivate their status.

Students in the DDS/PhD dual degree program satisfy the active status requirement by registering each semester in either the DDS or PhD programs.

Students who register for Spring semester and the following Fall semester do not need to register for summer term in order to maintain active status.

GRAD 999, a zero-credit, zero-fee, non-graded registration option, is an option for those Graduate School students who must register solely to meet the Graduate School's registration requirement. **International students may not be eligible for GRAD 999 due to visa requirements. International students should consult with International Student and Scholar Services (ISSS) before registering for GRAD 999.**

Confer with your adviser and the DGS to determine what you should register for each term. You should consider the following in addition to any criteria outlined by your adviser and/or DGS:

- Do you have course credits or thesis credits that must be taken to complete graduate program and/or Graduate School degree requirements?
- Do you have to be registered part-time or full-time to meet any internal/external registration requirements in addition to the Graduate School's fall/spring registration requirement (for example, obtaining financial aid; holding an assistantship; maintaining legal visa status; deferring loans)? What number of credits (and what type of credits) will meet the requirements of those internal/external departments or agencies?
- If you have completed all coursework and thesis credit requirements, and you do not have to be registered to meet any requirement other than the Graduate School's

fall/spring registration requirement to maintain active status, you may wish to confer with your adviser/DGS about GRAD 999 registration.

The Graduate Program in Oral Biology allows each student to register for one semester of GRAD 999. Additional enrollments in GRAD 999 will be allowed only in extraordinary circumstances. Students are encouraged to plan ahead to avoid GRAD 999 enrollment.

Coursework requirements

Coursework for the PhD degree is selected to give the student a broad background in oral biology plus advanced coursework directly related to the student's research interests. Per the University's administrative policy on [Credit Requirements for Master's and Doctoral Degrees](#), doctoral degrees must consist of a minimum of 48 credits: a minimum of 24 graduate-level course credits and a minimum of 24 thesis credits. As part of the 24 graduate course credits, the Graduate Program in Oral Biology requires all students to satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8020-8028, 8371), complete a statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent), and participate in the Oral Biology Seminar (OBIO 8030) each semester. **Courses may be selected from other disciplines with the approval of the advisor and the Director of Graduate Studies.** A designated minor (minimum 12 credits) in a nonclinical discipline is also required. The official degree program listing all courses offered for the major and minor should be submitted when all course work has been determined and before the end of the 4th semester in residence. After the preliminary written and oral exams have been passed, students are required to register for a minimum of 24 thesis credits while writing the doctoral thesis.

Students in the PhD program are encouraged to focus their studies in one of five curricular areas:

- biomaterials and biomechanics,
- epithelial biology and carcinogenesis,
- microbiology and immunology,
- sensory neuroscience, and
- bone biology, craniofacial development, and tissue engineering.

An exceptional student can create his/her own area of emphasis or specialize in topics not listed here; students should discuss their interests with the DGS before applying.

Documents outlining the course recommendations and calendars for each of the curricular emphasis areas (tracks) may be found in Appendix A of this handbook. These materials are also available on the Oral Biology website at <http://www.dentistry.umn.edu/programs-admissions/advanced-programs/oral-biology/curriculum/phd/index.htm>.

Graduate minor

Students must complete a designated nonclinical minor (which is certified on the transcript) by completing 12 or more credits in a single field. **A designated minor must be approved by the DGS in the minor field.** Minors generally are declared when the degree program form is filed, but must be declared prior to the final examination.

Each minor has its own distinct requirements; consult the Graduate School Catalog and contact the DGS in the minor field for specific course requirements. Plan to meet with the minor field's DGS early in your program and again as you approach completion of the minor requirement. Some minors, such as the minor in Microbiology, Immunology, and Cancer Biology (MICaB), have very specific course requirements and prerequisites. Others are more flexible. It is the student's responsibility to make sure all requirements are completed.

Thesis credit requirements

Students are required to take 24 thesis credits after completing all coursework and passing the preliminary written and oral examinations. In some circumstances, students may be allowed to take thesis credits after passing the preliminary written examination and before the preliminary oral examination. Contact the DGS to discuss this option.

Use of S/N credits

No more than 1/3 of a student's credits may be taken as S/N grade base. The required Oral Biology seminar (1 credit per semester, every Fall and Spring semester) is ONLY offered as S/N, which means Oral Biology students must take all other major courses on a graded basis. (A four-year degree involves 8 semesters and 8 credits of the Oral Biology seminar. Eight credits is 1/3 of the total 24 course credits required.)

Use of transfer credits

Demonstration of previous completion of equivalent course(s) at the University of Minnesota or elsewhere will result in the waiving of core course(s) as appropriate. Only 40% of the major coursework may be transfer credits. Transfer of thesis credits is not allowed. Graduate course credits earned at other accredited institutions may be transferred to doctoral degree plans subject to approval by the Graduate Program in Oral Biology and the limits described below. In the case of a transfer from a non-United States institution, graduate course credits to be transferred must have been earned in a program judged by the Graduate Program to be comparable to a graduate degree program of a regionally accredited institution in the United States.

The Graduate Program will determine, on a case-by-case basis, how many transfer course credits doctoral students may apply toward their degree requirement. However, doctoral students must take a minimum of 14 course credits at the University. Transferred credits can include a maximum of 12 graduate course credits taken as non-degree seeking or non-admitted status.

To request such a transfer, contact the Director of Graduate Studies. Official transcripts of the graded work must be attached to the degree program, unless they have already been included in the student's file. Transfer of graduate credit is not allowed for courses taken before the awarding of a baccalaureate degree. The number of credits accepted for transfer is determined by the Oral Biology Steering Committee.

Use of 4000-level courses

Classes must be at the 5000-level or higher to count towards the Oral Biology degrees. 4000-level courses are not appropriate. Graduate minors occasionally allow 4000-level courses; Oral Biology students should take higher-level courses.

B. Milestones

All PhD students are expected to reach the following milestones:

<p>Course Requirements</p> <ul style="list-style-type: none"> ▪ Complete a major core curriculum of 24 credits (minimum). ▪ Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371). ▪ Complete a statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent). ▪ Register and participate in the oral biology student seminar series (OBIO 8030) each semester for up to 10 semesters. ▪ Complete 12 credits in a designated, non-clinical minor program. ▪ Submit an official degree program form listing all courses offered for the major and minor no later than the 4th semester.
<p>Written Preliminary Examination (submission of research proposal)</p> <ul style="list-style-type: none"> ▪ The exam is based on the student's proposed thesis research and must be submitted by the 16th month in residence (3rd or 4th semester). ▪ Declare the preliminary examination committee at any time after the degree program form has been approved.
<p>Preliminary Oral Examination</p> <ul style="list-style-type: none"> ▪ The preliminary oral examination is scheduled after the preliminary written examination is successfully completed. It consists primarily of a defense of the thesis and non-thesis research proposals, but any area of oral biology and related disciplines (particularly the minor) may also be covered. ▪ DGS or program staff certify result of exam to Graduate School.
<p>Registration for Thesis Credits</p> <ul style="list-style-type: none"> ▪ Doctoral students are required to enroll for a minimum of 24 thesis credits (8888) while writing the doctoral thesis.
<p>Consultation</p> <ul style="list-style-type: none"> ▪ The final examination committee is declared any time after passing the preliminary oral examination. ▪ While the conduct of the thesis research is primarily under the direction of the student's advisor, the student is urged to meet regularly with members of the final oral examination committee to review progress. Students should meet at least once per semester with their committees.
<p>Research Seminar</p> <ul style="list-style-type: none"> ▪ Students must present a public seminar describing progress in their thesis research no later than six months before the anticipated date of defense of the thesis. The seminar will be attended by members of the final oral examination committee and the public.
<p>Final Oral Examination</p> <ul style="list-style-type: none"> ▪ Submit the thesis to the final examination committee at least two weeks prior to the defense date. All committee members must sign the Thesis Reviewers' Report prior to the defense. ▪ The final oral examination consists of a public defense of the thesis. ▪ Submit revised (if necessary) thesis to Graduate School.

Graduate Degree Plan (formerly known as the Degree Program Form)

The graduate degree plan is available online at <http://www.grad.umn.edu/current-students-forms/formsdoctoral> but must be filed at the Graduate Student Services and Progress Office (160 Williamson).

Doctoral students are expected to file an official program for the degree during their second year of study. School of Dentistry approval of the degree program form is required prior to selection of the preliminary exam committee and scheduling of the preliminary oral examination. Students are strongly encouraged to plan ahead to avoid unexpected delays.

The form should list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements in the major field and in the minor field or supporting program, including any transfer work. Courses included on the official degree program cannot be used to meet both major and outside credit requirements.

Once approved, the program must be fulfilled in every detail to meet graduation requirements and before the final oral examination can be scheduled. Program changes should be requested by completing a Graduate School petition form. The petition form is available from the Graduate School or online.

Doctoral Candidacy

Doctoral candidacy is established when a student passes the preliminary oral examination (including "pass with reservations").

Thesis credits

Doctoral students are required to enroll for a minimum of 24 thesis credits (OBIO 8888) while writing the doctoral thesis. Students may not register for thesis credits until the semester after they have passed their preliminary oral examination.

Consultation

While the conduct of the thesis research is primarily under the direction of the student's advisor, the student is urged to meet regularly with members of the final oral examination committee to review progress. Students are encouraged to meet with their committees at least once per semester.

Research Seminar

Students must present a public seminar describing progress in their thesis research no later than six months before the anticipated date of defense of the thesis. The seminar will be attended by members of the final oral examination committee and the public. **Students are required to notify the DGS and DGS Assistant of the date of the research seminar at least 2 weeks in advance.**

The six-month seminar should include a presentation of research completed to date, and most importantly, a discussion of the research to be completed in the next six months, with the goal of defending the final thesis at the end of those six months. The committee is required to discuss the presented plan for completion and determine if the plan is realistic and if any other tasks/experiments/analysis are required before the thesis may be completed.

The six-month seminar is a requirement of the Graduate Program in Oral Biology, not of the Graduate School. There are no forms to be filed related to this seminar.

Thesis

The thesis must demonstrate the student's originality and ability for independent investigation, and the results of the research must constitute a contribution to knowledge. The thesis must exhibit the student's mastery of the literature of the subject and familiarity with the sources. The subject matter must be presented with a satisfactory degree of literary skill. Therefore, **all Oral Biology students are advised to enroll for a writing seminar immediately after completion of their preliminary exams.**

C. Examinations

The PhD in Oral Biology requires passing three major examinations.

Written Preliminary Examination

The written preliminary examination is taken during the 2nd year of coursework. Before the exam may be taken, the student must file the Graduate Degree Plan. The Graduate Program in Oral Biology strongly recommends the student assign his/her preliminary oral examination committee (process below) and meet with the committee at least once prior to submitting the written preliminary examination.

The written preliminary examination consists of the submission of a research proposal. The proposal must represent the student's own work. Excessive intellectual assistance or editing by the advisor is **not** allowed in the preparation of the proposal. To promote the learning process, however, students are encouraged to initiate discussions and seek input from faculty with appropriate expertise as the research proposal is developed.

The proposal is based on the student's proposed thesis research and should be submitted and defended in writing by the 16th month in residence. Students in combined clinical specialty/PhD tracks may file a petition with the Director of Graduate Studies for a reasonable extension of the deadline for submission of the thesis research proposal.

The student is expected to review the literature, develop precise hypotheses to be tested, describe an appropriate experimental design and plan, and address the significance of the proposed research. The literature review should be critical rather than exhaustive and lead the reader to a significant research question which is then stated as a formal hypothesis. The experimental design must describe a definitive and feasible test of the validity of the hypothesis. The experimental protocol need not be described in definitive detail, but must provide sufficient information so as to be readily comprehensible to a knowledgeable reviewer.

The proposal is to be written in the following format and comply with NIH formatting guidelines (line spacing, margins, fonts, etc.) for R03/R21 proposals.

Section/Field Name	Instructions	Page limit
Introduction	For revised exams only. An Introduction must be included that summarizes the substantial additions, deletions, and changes to the proposal. The Introduction must also include a response to the issues and criticism raised by the reviewers. Additionally, the substantial scientific changes must be marked in the text of the application by bracketing, indenting, or change of typography. Do not underline or shade the changes. Deleted sections should be described but not marked as deletions. If the changes are so extensive that essentially all of the text would be marked, explain this in the Introduction.	1
Specific Aims	State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.	1
Research Strategy	<p>Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading – Significance, Innovation, Approach. The Significance and Innovation sections should reflect a critical review of the literature with appropriate citations.</p> <p>(a) <i>Significance</i></p> <ul style="list-style-type: none"> • Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. • Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. • Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved. <p>(b) <i>Innovation</i></p> <ul style="list-style-type: none"> • Explain how the application challenges and seeks to shift current research or clinical practice paradigms. • Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions. • Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions. <p>(c) <i>Approach</i></p> <ul style="list-style-type: none"> • Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted. • Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. • If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work. 	6 single-spaced pages (or equivalent double-spaced pages)
Bibliography	Cite references.	None

When written, the preliminary exam is submitted to the DGS Assistant. Working with the DGS, the DGS Assistant will circulate the exam to the reviewers, who then have 2 weeks to complete their initial review. The proposal is reviewed by members of the preliminary oral exam committee. An additional reviewer, external to the University, may be invited at the DGS' discretion. Reviewers will prepare written critiques and choose one of 4 options: Pass without reservations, Pass with reservations to be addressed in the preliminary oral exam, Unacceptable in present form (Modify), or Unacceptable (Prepare a new proposal). If a reviewer who is not a member of the preliminary oral exam committee selects "Pass with reservations to be addressed in the oral exam," s/he will contact the committee chair to discuss the concerns raised. For each reviewer who selects "Unacceptable (Modify)", students must respond in writing to the critique point-by-point and modify the proposal. Unanimous approval of the proposal by the reviewers constitutes completion of the preliminary written examination.

The results of the examination are reported by program staff directly to the Graduate Student Services & Progress office. It is the student's responsibility to ensure that the written preliminary exam result has been certified before scheduling the preliminary oral examination.

Preliminary Oral Examination

The preliminary oral examination is scheduled after the preliminary written examination is passed, but before writing the dissertation. It consists primarily of a defense of the thesis research proposal, but any area of oral biology and related disciplines (particularly the minor) may also be covered. If the examination is failed, it may be repeated once at the discretion of the examining committee in consultation with the Director of Graduate Studies. The preliminary oral examination is conducted as a closed examination, attended by only the student and the examining committee.

▪ **Committee**

The examination is administered by a committee. The University's administrative policy on [Appointments to Graduate Examination Committees](#) dictates who is eligible to serve on such committees. In Oral Biology, the preliminary oral examining committee includes a minimum of four members: three from the major field of Oral Biology and one from the minor field. In order to provide the student with as robust a review and examination as possible, **the Graduate Program does not allow the advisor to serve on the preliminary oral examination committee.** The advisor is more than welcome to attend and observe the examination. Committee members cannot represent more than one field simultaneously. All assigned members must be present at the preliminary oral examination; the absence of any member results in an invalid examination. The Committee chair is encouraged to discuss the exam in advance with the student's advisor.

Substitutions on the examining committee may be necessitated by such circumstances as a faculty member's temporary absence on leave from the University. The chair or DGS must request the School of Dentistry's approval of such substitutions well in advance of the examination. Substitutions necessitated by emergency situations must also be approved in advance. In such cases, the chair should consult with the Graduate Student Services & Progress staff before the start of the examination.

▪ **Scheduling**

It is the responsibility of the student to schedule the preliminary oral exam with the examiners at least one week in advance. Once a date is determined, the student must

notify the Graduate School via an online form at <http://www.grad.umn.edu/students/forms/doctoral/index.html>.

Before the oral examination can be scheduled, the Graduate Degree Plan and preliminary examination committee must be fully approved, the written preliminary examination result must be certified, and the student must have active student status.

Please note that the student is responsible for scheduling and confirming the time and place of the examination with all committee members.

▪ **Outcome**

The exam is recorded with one of three outcomes: pass, pass with reservations, or fail.

Pass—Congratulations! The signed oral examination report form is submitted to the Graduate Student Services & Progress Office by the committee chair.

Pass With Reservations—If the student passes the examination with reservations, the student is informed immediately, but the committee is permitted one week in which to convey its reservations to the student in writing, informing the student of the steps that must be taken to remove them. A copy of this letter must be sent to the Graduate School and should accompany the signed oral examination report form. When the student has satisfied the committee's reservations, a second letter informing the student and the Graduate School that the reservations have been removed and that the student may proceed toward the degree is also required. Both letters must be written by the committee chair. The final oral examination may not be scheduled until the Graduate School has received a copy of the letter indicating that the reservations have been removed. If the committee members disagree as to whether the reservations have been satisfactorily removed, the committee chair asks for another vote, the results of which are subject to the same voting proportions as the initial vote. If the student is unable to satisfy the committee's reservations, his or her doctoral candidacy and graduate student status may be terminated.

Fail—Students who fail the examination may be excluded from candidacy for the degree or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original preliminary oral examining committee. In no case may the reexamination take place before 10 weeks have passed. No more than one reexamination is allowed.

Final Oral Examination

The final oral examination consists of a public defense of the thesis, and is conducted as described in the Graduate School Catalog. All doctoral students are required to successfully defend their theses in a final oral examination and graduate within five calendar years after passing the preliminary oral examination. To be eligible for the final oral examination, a student must have completed all coursework on the Graduate Degree Plan, must have passed both the written and oral preliminary examinations, must have maintained active status, and must have satisfied the thesis credit requirement. In addition, the thesis must have been certified by the readers as ready for defense.

- **Committee**

The University's administrative policy on [Appointments to Graduate Examination Committees](#) dictates who is eligible to serve on the final examination committee. In Oral Biology, the committee must consist minimally of four members: three (**including the student's adviser**) from the major field and one from the minor field. Committee members cannot represent more than one field simultaneously. Although the student's adviser may serve as a member of the final oral examining committee, another member of the committee is designated as the chair and functions in this capacity at the final oral examination. The chair must be a member of a graduate faculty at the University of Minnesota, in either the major or minor field. All committee members must be present at the examination; the absence of any member results in an invalid examination. At least one committee member must have full tenure at the University of Minnesota and at least two members must be tenure-track or tenured faculty.

Substitutions on the examining committee may be necessitated by such circumstances as a faculty member's temporary absence on leave from the University. The adviser or DGS must request the School of Dentistry's approval of such substitutions well in advance of the examination. Substitutions necessitated by emergency situations must also be approved in advance. In such cases, the committee chair should consult with the Graduate Student Services & Progress staff before the start of the examination.

The Graduate Program in Oral Biology expects students to meet regularly with the final examination committee, not less than one meeting per semester. After every committee meeting, the chair must submit a written report to the Director of Graduate Studies. Reports should utilize or follow the attached form.

Thesis Reviewers

All members of the final oral examining committee read the thesis, although only those designated as thesis reviewers sign the report form certifying that the thesis is ready for defense. The designated thesis reviewers consist of the adviser, representing the major field, and at least two other members of the final oral examining committee, including at least one representative from the major field and one representative from the minor or supporting program. Reviewers cannot represent more than one field simultaneously. Certification of the thesis as ready for defense is a necessary step toward the final oral examination, but in no way diminishes the significance of that examination. The thesis reviewers' report form is obtained from the Graduate Student Services & Progress Office (160 Williamson Hall), or by requesting a graduation packet online.

At the time the candidate submits a draft of the thesis to the thesis reviewers, copies must also be provided to all other members of the final oral examining committee. The thesis abstract must be included with the thesis when it is distributed to the committee. The abstract must be signed by the adviser and submitted, with the final thesis copy, to the Graduate School. To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their adviser and other members of the final oral committee at least two weeks in advance that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered. When signing the thesis reviewers report form, the reviewers have three options: the thesis is acceptable for defense as presented; the thesis is acceptable for defense with minor revisions; or the

thesis requires major revisions and is not acceptable for defense as presented. The reviewers must be unanimous in certifying that the thesis is ready for defense, whether as presented or with minor revisions. If this is the case, and all other requirements have been met, the student will be authorized for the final oral examination. In any instance where revisions are required, the committee must inform the student in writing of the revisions required, and all questions concerning such revisions must be resolved before the final copies of the thesis are submitted and the degree is conferred. It is the adviser's responsibility to ensure that revisions required by the reviewers are satisfactorily made.

▪ **Scheduling**

The student must schedule the examination at least one week in advance with the Graduate Student Services & Progress Office. Please note that the committee must receive the thesis at least two weeks prior to the exam. The final oral examination is scheduled online. When the examination is scheduled, the student's Graduate School file is checked to determine if the student can be cleared to take the examination as stipulated above. If so, the report form for the final oral examination will be forwarded to the chair of the examining committee. If difficulties are apparent, Graduate Student Services & Progress staff will contact the student immediately. A minimum of 10 weeks must intervene between the preliminary oral and the final oral examinations. Also, the final oral should not be scheduled during the summer unless the committee members can be assembled without substitution.

To schedule the final oral exam:

- The electronic scheduling process **must be initiated by the student**. To do so, the student clicks on the Final Oral Examination Scheduling link listed at http://www.grad.umn.edu/current_students/forms/doctoral.html.
- After logging in with the x.500 ID and password, the student enters the final oral examination date and clicks "submit." (Note that all other required student information fields are automatically populated.)
- The Graduate Student Services & Progress (GSSP) office will notify the student by email regarding any outstanding final oral exam requirements, and how to fulfill those requirements. The student will also receive confirmation from the GSSP office upon the Graduate School's authorization of the final oral examination. This continues current practice.
- The DGS assistant will be copied automatically on all of the above-mentioned emails so that the graduate program office is informed of the Graduate School's review and authorization of their student's final oral exam.

D. Degree completions procedures

All degree components and completion procedures are the responsibility of the student. Students are advised to regularly consult with program staff regarding next steps, paperwork, and milestones. The University's administrative policy on [Doctoral Degree: Performance Standards and Progress](#) governs degree completion.

Time Limit for Earning the Doctoral Degree

All requirements for the doctoral degree must be completed and the degree awarded within five calendar years after passing the preliminary oral examination or eight years after initial enrollment, whichever is soonest. Students who are unable to complete the degree within the time limit may petition the Graduate Program for an extension of up to 24 months. Extensions beyond one year are considered only in the most extraordinary circumstances. To ensure timely consideration, petitions should be filed at least six months before the time limit expires.

If the petition is approved, the student is notified of the expectations for progress and completion of the degree. If the petition is denied, the student is terminated from doctoral candidacy and from the graduate program. Students who have been terminated under such circumstances may apply for readmission to the Graduate School; readmission under these circumstances is not assured.

Submission of the Thesis

A copy of the thesis must be submitted to the University, as per the University's administrative policy on [Doctoral Degree: Completion](#). The student's adviser(s) must sign the thesis to confirm that it is complete and satisfactory in all respects and that all revisions required by the final examining committee have been made. Instructions for the preparation of the thesis, including format specifications and adviser's signature requirements, can be obtained from the Graduate Student Services & Progress website at <http://www.grad.umn.edu/sites/grad.umn.edu/files/thesis%20formatting.pdf>.

Students may request the University embargo publication of the dissertation for a limited period of time after submission. Contact the Graduate Student Services & Progress office for assistance with an embargo.

The University publishes and stores theses in the Digital Conservancy. The University Digital Conservancy is a program that provides reliable long-term open access, broad dissemination, and preservation for works produced by individuals and programs affiliated with the University of Minnesota. Materials in the Conservancy are freely available online to the world. Works contributed to the Conservancy serve as a permanent University of Minnesota record of your scholarship.

In the Conservancy, your work will be:

- preserved for the long-term, with a permanent, stable URL
- more visible and findable, with higher-ranked results in search engines like Google Scholar
- freely and openly accessible worldwide

Deposit to the Conservancy is not required, but the University of Minnesota does require that all dissertations and theses eventually be accessible to the public. Authors who expect to commercially publish their thesis or dissertation without any further editing, or whose work

contains sensitive data or potentially patentable inventions may not wish to widely share their work immediately. These authors may elect to place a “hold” on public sharing of their research when they submit their work to the Graduate School, and such holds will apply to all public copies.

If you contribute your work to the Conservancy, that will serve as the permanent Libraries copy. Any dissertation or thesis not made accessible through the Conservancy will still be cataloged in University Libraries, and a copy of the thesis will be managed by and made available by University Libraries and/or ProQuest at the conclusion of any hold period.

For all works submitted to the Conservancy, a Deposit Agreement is required. The Deposit Agreement is not required if you decline to submit your work to the Digital Conservancy.

More Information

Students who have questions about the doctoral degree, including information on examinations and the thesis, may review online information or contact the Graduate Student Services & Progress office by e-mail at gssp@umn.edu.

IV. MS Degree Requirements

The *Graduate School Catalog* contains detailed information concerning registration, degree requirements, program and thesis registration, and other procedures and deadlines. The Director of Graduate Studies (DGS) and the student's advisor will assist the student in complying with Graduate School procedures, but **it is the student's responsibility to meet all requirements and deadlines**. The *Graduate School Catalog* may be viewed online at <http://www.catalogs.umn.edu/grad/index.html>.

A. Coursework

Maintaining Active Status

ALL Graduate School students are required to register in the Graduate School every fall and spring term in order to maintain active status. Maintaining active status is critical and is required in order to participate in the University community as a Graduate School student. Participating in the University community includes registering for coursework, taking examinations, submitting milestone forms, or filing for graduation. Students not registered every fall and spring term are considered to have withdrawn; their Graduate School records are deactivated. Those who wish to resume graduate work must request readmission to the Graduate School (and if readmitted, must register) to reactivate their status.

GRAD 999, a zero-credit, zero-fee, non-graded registration option, is an option for those Graduate School students who must register solely to meet the Graduate School's registration requirement. Confer with your adviser and/or DGS to determine what you should register for each term. You should consider the following in addition to any criteria outlined by your adviser and/or DGS:

- Do you have course credits or thesis credits that must be taken to complete graduate program and/or Graduate School degree requirements?
- Do you have to be registered part-time or full-time to meet any internal/external registration requirements in addition to the Graduate School's fall/spring registration requirement (for example, obtaining financial aid; holding an assistantship; maintaining legal visa status; deferring loans)? What number of credits (and what type of credits) will meet the requirements of those internal/external departments or agencies?
- If you have completed all coursework and thesis credit requirements, and you do not have to be registered to meet any requirement other than the Graduate School's fall/spring registration requirement to maintain active status, you may wish to confer with your adviser/DGS about GRAD 999 registration.

The Graduate Program in Oral Biology allows each student to register for one semester of GRAD 999. Additional enrollments in GRAD 999 will be allowed only in extraordinary circumstances. Students are encouraged to plan ahead to avoid GRAD 999 enrollment.

International students may not be eligible for GRAD 999 due to visa requirements. International students should consult with International Student and Scholar Services (ISSS) before registering for GRAD 999.

Coursework requirements

The Graduate Program in Oral Biology requires all MS students to follow Plan A (thesis). Per the University's administrative policy on [Credit Requirements for Master's and Doctoral Degrees](#), MS students complete a minimum of 20 graduate-level course credits and 10 thesis credits. The Graduate Program in Oral Biology requires the 20 graduate-level course credits include 4 credits of oral biology topics courses (OBIO 8012,8018, 8021-8029, 8371), participation in the Oral Biology seminar (OBIO 8030) each semester (1 credit per semester), and 6 credits in a nonclinical graduate minor. **Courses for credit in the major may be taken from other disciplines with the approval of the advisor and the Director of Graduate Studies.**

In addition, students must complete a research project under the supervision of the advisor, and write and successfully defend a thesis. Students must enroll for a minimum of 10 master's thesis credits (OBIO 8777) before receiving the degree. A final oral examination is also required.

Graduate minor

Students must complete a designated nonclinical minor (which is certified on the transcript) by completing 6 or more credits in a single field. **A designated minor must be approved by the DGS in the minor field.** Minors generally are declared when the degree program form is filed, but must be declared prior to the final examination.

Each minor has its own distinct requirements; consult the Graduate School Catalog and contact the DGS in the minor field for specific course requirements. Plan to meet with the minor field's DGS early in your program and again as you approach completion of the minor requirement. Some minors, such as the minor in Microbiology, Immunology, and Cancer Biology (MICaB), have very specific course requirements and prerequisites. Others are more flexible. It is the student's responsibility to make sure all requirements are completed.

Thesis credit requirements

MS students must enroll for a minimum of 10 master's thesis credits (OBIO 8777) before receiving the degree. Students cannot include thesis credits in the total program credits when determining maximum transfer allowed. They also cannot transfer thesis credits from other graduate institutions, double-count thesis credits between two master's degrees, or use thesis credits to meet the minimum major and related field coursework requirements for the degree.

Use of S/N credits

No more than 1/3 of a student's credits may be taken as S/N grade base. The required Oral Biology seminar (1 credit per semester, every Fall and Spring semester) is ONLY offered as S/N, which means Oral Biology students usually must take all other major courses on a graded basis. (A two-year degree involves 4 semesters and 4 credits of the Oral Biology seminar. One-third of the 20 graduate-level course credits is 6.7, which severely limits the possibility of taking other courses S/N.)

Use of transfer credits

Per the University's administrative policy on [Application of Graduate Credits to Degree Requirements](#), Master's degree students are required to complete at least 60 percent of the coursework for their Graduate Degree Plan (excluding thesis credits) at the University of Minnesota. With approval of the adviser, DGS, and School of Dentistry, transfer coursework

may make up the remaining 40 percent (maximum) of the degree coursework. Students may have a maximum of 8 credits in common between two master's-level degrees.

Work to be transferred must be graduate level (postbaccalaureate) and have been taught by faculty authorized to teach graduate courses. It is the student's responsibility to provide appropriate course documentation (e.g., course syllabi, faculty status information) supporting proposed transfer credits to the program. Credits are transferred by including the courses in the proposed degree program. Credits not accepted as part of a student's degree program cannot be transferred to the graduate transcript. Courses taken before the awarding of a baccalaureate degree cannot be transferred.

Use of 4000-level courses

Classes must be at the 5000-level or higher to count towards the Oral Biology degrees. 4000-level courses are not appropriate. Graduate minors occasionally allow 4000-level courses; Oral Biology students should take higher-level courses.

B. Milestones

All MS students are expected to reach the following milestones:

<p>Course Requirements</p> <ul style="list-style-type: none"> • Complete a major core curriculum of 14 credits (minimum). • Complete 4 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371). • Register and participate in the Oral Biology Seminar (OBIO 8030) each semester. • Complete a designated minor (minimum 6 credits) in a nonclinical discipline. • Submit the Graduate Degree Plan listing all courses offered for the major and minor after completion of 10 credits and not later than the second semester of residence.
<p>Plan A: Master's Degree with Thesis</p> <ul style="list-style-type: none"> • Students must enroll for a minimum of 10 master's thesis credits (OBIO 8777). • Write and successfully defend thesis based on research project.
<p>Consultation</p> <ul style="list-style-type: none"> • While the conduct of the research is primarily under the direction of the student's advisor, the student is urged to meet regularly with members of the final oral examination committee to review progress.
<p>Final Oral Examination</p> <ul style="list-style-type: none"> • The final oral examination may cover the major field and the minor or related fields, and may include any work fundamental to these fields.

Graduate Degree Plan (formerly known as the Degree Program Form)

The graduate degree plan is available online at

<http://policy.umn.edu/sites/policy.umn.edu/files/forms/otr198.pdf>, but must be filed at the Graduate Student Services and Progress Office (160 Williamson).

MS students must file the Graduate Degree Plan by the time they have completed 10 credits. Approval of the degree program form is required prior to obtaining the master's graduation packet, taking the master's final examination, and/or degree clearance. Students are strongly encouraged to plan ahead to avoid unexpected delays.

Students list all coursework, completed and proposed, that will be offered in fulfillment of degree requirements, including transfer work. Courses included on the official degree program form cannot be used to meet both major and outside credit requirements.

An approved Graduate Degree Plan must be on file before the reviewers' report, examination, or graduation forms can be released to the student.

Once approved, the degree program must be fulfilled in every detail to meet graduation requirements. Program changes should be requested by contacting the DGS.

Master's Thesis

Students must demonstrate familiarity with the tools of research or scholarship in their major field, the ability to work independently, and the ability to present the results of their investigation effectively, by completing a master's thesis. Theses must be written in English.

The thesis may include materials that students have published while University of Minnesota graduate students, provided the research was carried out under the direction of the graduate faculty and approved by the adviser for incorporation into the thesis. Such publication is welcomed as the best demonstration of quality in a student's research, and the Graduate School encourages the practice. The adviser should notify the Graduate Student Services & Progress office in writing of the intention to publish part of the thesis material, but the Graduate School's approval is not required.

The thesis is read by the entire examining committee. The University's administrative policy on [Appointments to Graduate Examination Committees](#) dictates who is eligible to serve on such committees. This examining committee consists of at least three members, including the advisor(s): two representatives from Oral Biology and one from the minor field. Committee members cannot represent more than one field simultaneously. Students should select committee members in consultation with the advisor and DGS. The committee is officially assigned via an online process initiated by the student at <http://www.grad.umn.edu/students/forms/masters/index.html>.

To permit faculty to allocate sufficient time to read the thesis and decide whether it is ready for defense, students must notify their adviser and other members of the final oral committee at least two weeks in advance that the thesis will be delivered on a particular date. All members of the examining committee must then have at least two weeks to read the thesis after it has been delivered. These are minimum standards; students are encouraged to give committee members additional review time.

The entire committee must be unanimous in certifying that the thesis is ready for defense, as indicated by their signatures on the thesis reviewers report form. The thesis reviewers' report form, part of the graduation packet, is requested online. This form will be released only if the student has an approved Graduate Degree Plan on file and has maintained active status. When the signed thesis reviewers' report form is returned to the Graduate Student Services & Progress Office (160 Williamson Hall), the student is provided with the final examination report form.

Substitutions on the examining committee may be necessitated by such circumstances as a faculty member's temporary absence on leave from the University. The adviser or DGS must request the School of Dentistry's approval of such substitutions well in advance of the examination. Substitutions for an oral examination that are necessitated by emergency situations must also be approved in advance. In such cases, the adviser should consult with the Graduate Student Services & Progress staff before the start of the examination.

C. Examinations

The MS degree requires one examination.

Final Examination

Oral Biology MS students must pass a final oral examination. The University's administrative policy on [Master's Degree: Completion](#) states the procedures necessary for the final exam and degree clearance. The final examination consists primarily of a defense of the thesis, but may cover the major field and the minor or related fields, and may include any work fundamental to these fields. The final oral for the master's degree is conducted as a closed examination, attended by only the student and the examining committee. The thesis defense portion of the examination may be a public seminar; the Graduate Program in Oral Biology encourages this practice.

Final examinations are coordinated by the chair of the student's examining committee. All committee members must be present at the examination. **It is the responsibility of the student to schedule the exam at a time convenient for all committee members.** The results of the examinations are reported to the Graduate Student Services & Progress Office on the final examination report form. A majority vote of the committee, all members present and voting, is required to pass the examination. A student who fails the examination may be terminated from the graduate program or may be allowed, on unanimous recommendation of the examining committee, to retake the examination, providing the reexamination is conducted by the original examining committee.

D. Degree completion procedures

All degree components and completion procedures are the responsibility of the student. Students are advised to regularly consult with program staff regarding next steps, paperwork, and milestones. The University's administrative policy on [Master's Degree: Performance Standards and Progress](#) governs degree completion.

Time Limit for Earning the Master's Degree

All requirements for the master's degree must be completed and the degree awarded within seven years. The seven-year period begins with the earliest coursework included on the official degree program form, including any transfer work.

Students who are unable to complete the degree within the seven-year limit may petition the School of Dentistry for an extension of up to one additional year. Extensions beyond one year are considered only in the most extraordinary circumstances. To ensure timely consideration, petitions should be filed early in the term in which the time limit expires.

If a petition is approved, the student is notified of the expectations for progress and completion of the degree. If the petition is denied, the student is terminated from the graduate program.

Students who have been terminated under such circumstances may apply for readmission to the Graduate School; however, readmission under these circumstances is not assured. The faculty in the major field and the Graduate School set any readmission conditions on the student's resumption of work toward the degree, such as registering for additional coursework, retaking written examinations, completing the degree within a specified time period, or other appropriate terms.

For more information about the master's degree time limit and petitioning procedure, visit <http://www.grad.umn.edu/current-students-forms/forms-masters>.

Submission of the Thesis

A copy of the thesis must be submitted to the University, as per the University's administrative policy on [Master's Degree: Completion](#). The student's adviser(s) must sign the thesis to confirm that it is complete and satisfactory in all respects and that all revisions required by the final examining committee have been made. Instructions for the preparation of the thesis, including format specifications and adviser's signature requirements, can be obtained from the Graduate Student Services & Progress website at http://www.grad.umn.edu/sites/grad.umn.edu/files/grad_content_460854.pdf.

Students may request the University embargo publication of the dissertation for a limited period of time after submission. Contact the Graduate Student Services & Progress office for assistance with an embargo.

The University publishes and stores theses in the Digital Conservancy. The University Digital Conservancy is a program that provides reliable long-term open access, broad dissemination, and preservation for works produced by individuals and programs affiliated with the University of Minnesota. Materials in the Conservancy are freely available online to the world. Works contributed to the Conservancy serve as a permanent University of Minnesota record of your scholarship.

In the Conservancy, your work will be:

- preserved for the long-term, with a permanent, stable URL
- more visible and findable, with higher-ranked results in search engines like Google Scholar
- freely and openly accessible worldwide

Deposit to the Conservancy is not required, but the University of Minnesota does require that all dissertations and theses eventually be accessible to the public. Authors who expect to commercially publish their thesis or dissertation without any further editing, or whose work contains sensitive data or potentially patentable inventions may not wish to widely share their work immediately. These authors may elect to place a "hold" on public sharing of their research when they submit their work to the Graduate School, and such holds will apply to all public copies.

If you contribute your work to the Conservancy, that will serve as the permanent Libraries copy. Any dissertation or thesis not made accessible through the Conservancy will still be cataloged in University Libraries, and a copy of the thesis will be managed by and made available by University Libraries and/or ProQuest at the conclusion of any hold period.

For all works submitted to the Conservancy, a Deposit Agreement is required. The Deposit Agreement is not required if you decline to submit your work to the Digital Conservancy.

More Information

Students who have questions about the master's degree after reading this handbook should contact the Assistant Program Director at hagen055@umn.edu. Students should also review the Graduate School website and may contact the Graduate Student Services & Progress Office by e-mail at gssp@umn.edu.

V. Academic Standards and Progress

Grade Requirements

All MS and PhD students must maintain a cumulative GPA of at least 3.0 in both the major and minor areas. **This standard is higher than the minimum specified by the Graduate School.** A student who does not obtain a GPA of 3.0 in any one semester will be placed on academic probation for the following semester. Students with a cumulative GPA of less than 3.0 for two consecutive semesters will be terminated from the program. Only grades of A or B are acceptable in any oral biology topics courses. Receipt of a lower grade in an oral biology topics course requires repetition of the course. Students will not be permitted to accumulate more than 6 credits of incomplete coursework.

Courses with grades of A, B, C (including C-), and S may be included in the official degree program, but grades of S are not calculated in the GPA. Oral Biology master's students are required to register for thesis credits (OBIO 8777); these registrations are not graded and therefore cannot be used to meet course credit requirements. At least two-thirds of the course credits included on any degree program form must be taken A-F.

Incompletes

Incomplete grades are given when a student cannot complete a course's requirement prior to the end of the term in which the course is offered. Per the University's administrative policy on [Grading and Transcripts](#), an incomplete grade, designated as I on the transcript, is given at the discretion of the instructor. A written agreement between the instructor and student must specify the time and manner in which the student will complete the course requirements.

Expectations for Degree Progress

Students are expected to make good progress every semester. Progress is good when the student adheres to the guidelines for his/her emphasis/track and files milestone forms with the Graduate School as outlined in the Graduate School Catalog. Students who are having difficulty following the timetables outlined in the emphasis/track documents should meet as soon as possible with his/her advisor and the DGS.

Timelines

Detailed timelines for degree progress are discussed above in the requirements for each degree. Additional charts of these timelines appear in this handbook's Appendix.

Annual Review of Student Progress

Per the University's administrative policies on [Doctoral Degree: Performance Standards and Progress](#) and [Master's Degree: Performance Standards and Progress](#), the Graduate Program must review student progress annually and provide the review's results in writing to the student. Therefore, student progress is reviewed annually by the Oral Biology Steering Committee. Each May, students will be asked to submit progress reports containing the following information:

- All courses taken in the past academic year,
- All courses planned for the upcoming academic year,
- Progress towards preliminary exams and thesis completion and defense, including dates scheduled or planned,
- Summary of progress in research project, and
- Specific issues for discussion with the Steering Committee.

Students must attach copies of abstracts and papers published in the last year and indicate conference details (dates, name of conference, etc.). **Progress reports must be signed by the students' advisors.**

Meetings with the Steering Committee will briefly discuss student progress and plans. Students are encouraged to meet with the DGS Assistant throughout the year to provide updates on progress.

Each year, students will be provided with individual letters summarizing the degree progress made to date and the specific recommendations of the Steering Committee.

Writing Standards

All theses and other papers for the Graduate Program in Oral Biology must be written in English. The subject matter of all papers must be presented with a satisfactory degree of literary skill. Therefore, **all Oral Biology students are advised to enroll for a writing seminar.** Individual assistance and workshops are available through the University's Center for Writing (<http://writing.umn.edu>).

Advising

New students will be assigned a temporary advisor by the Oral Biology Steering Committee. Students should familiarize themselves as rapidly as possible with faculty members in the program through tutorials, seminars, and informal contacts, so that they can choose an advisor by the end of the first semester in residence. Students may change advisors subsequently, with the advice and consent of the Director of Graduate Studies. Selection of an advisor is critically important, since the student and advisor together plan the student's program of coursework and the thesis research project. Tutorials may be available with individual faculty members for those students who wish to become familiar with faculty research to aid in selection of an advisor.

Program and College Degree Clearance Procedures

The Graduate Program in Oral Biology uses the annual review process to verify that all program and Graduate School requirements are met. When all requirements to graduate are met, MS students will be sent an email from the Graduate Student Services and Program office during the middle of the month they applied to graduate informing them of any outstanding requirements or confirming degree completion. Doctoral students will be notified of any outstanding requirements at the time of dissertation submission.

Records Policies

The Graduate Program in Oral Biology maintains files on every student. Information in these files includes application materials, annual progress reports, copies of official correspondence from the Graduate School and the program, student publications, and Graduate School forms. The files are kept private and are only available to staff on a need-to-know basis. The Graduate Program in Oral Biology maintains privacy of these files as dictated by FERPA regulations. A student may request access to his/her file by writing to the DGS. Students may then access all contents in the file to which he/she has not waived viewing rights. For example, students frequently waive viewing rights to letters of recommendation included in the application to the program. In no circumstances may the student view these documents.

Responsibilities

All students and the Graduate Program in Oral Biology have responsibilities to each other. These responsibilities are generally discussed in the Graduate School's policy appendix on [Mutual Roles and Responsibilities for Faculty and Graduate Students: Guidelines](#).

Additionally, **Oral Biology graduate students have the responsibility to ensure they meet all degree program requirements. It is up to each student to locate information and complete requirements.**

The Graduate Program in Oral Biology is responsible for assisting students in meeting their requirements. Individual staff assist students in different ways.

- The Director of Graduate Studies (DGS) supervises and coordinates the administration of the program, serves as a point of contact for graduate students enrolled in the program, provides administrative linkage between the Graduate Faculty and the department or departments contributing to its programs, and acts as the liaison between the program and the administration of the School of Dentistry and Graduate School. The DGS is nominated by the graduate faculty and approved by the Dean of the Graduate School. In Oral Biology, the DGS serves a 3-year renewable term. Currently, the DGS for OBIO is Kim Mansky, PhD (kmansky@umn.edu, 612-626-5582). 2015-16 is the second year of Prof. Mansky's first term as DGS.
- The Oral Biology Steering Committee serves as the initial advisory group for incoming students, reviews applications, reviews annual student progress, assists in program guidance, reviews graduate faculty membership, selects fellowship nominees and recipients, and develops fundraising campaigns. All recommendations of the Steering Committee are advisory to the DGS. Members of the 2015-16 Steering Committee will be confirmed at the first faculty meeting in September 2015. The DGS and DGS Assistant serve *ex officio*.
- The DGS Assistant is responsible for all student services, including advising and activities. The DGS Assistant coordinates annual student reviews, meets regularly with each student, orients new students to the curriculum and degree program milestones, manages the admissions process, coordinates the Graduate Faculty's membership and activities, manages student records, tracks the Program's budget, fellowships, and grants, and serves as the primary contact to the Graduate School's offices of Admissions, Student Services, and Fellowships. Ann Hagen (hagen055@umn.edu, 612-626-4483) is the current DGS Assistant.

Grievances

The Graduate Program in Oral Biology strives to make each student's progress and path to success as straightforward as possible. Some students may encounter miscommunications and problems along their way; the Program and the University offer several ways to handle these situations.

If a student cannot work through the problem directly with the other party, the Graduate Program suggests the following procedures:

Meet with the DGS Assistant to discuss the issue. Traditionally, many issues can be resolved at this level. If additional discussion is needed, the DGS Assistant or the student can initiate a meeting with the DGS. If conflict does not resolve with DGS assistance, the DGS may recommend meeting with the relevant department chair, the School of Dentistry's Associate Dean for Academic Affairs, or a University-wide office.

The University of Minnesota offers the following conflict resolution services:

- The [University Office for Conflict Resolution](#) provides various services for faculty, TAs, RAs, and staff including anonymous consultation and mediation by a neutral third-party. Some aspects that they deal with include employment concerns such as expectations and workload in TA and RA relationships. For more information, please see their web site.
- The [Student Conflict Resolution Center](#) (SCRC) provides a full range of services to students with campus-based complaints or concerns. An *ombudsman* helps students resolve problems informally. An *advocate* is also available to assist students in formal grievance or disciplinary hearings. SCRC can help students deal with university regulations and policies, or misunderstandings between students and instructors or administrators. Students may also have concerns about unfair treatment or may have been accused of a violation of the student conduct code.

Conduct

All students at the University of Minnesota must follow the Student Code of Conduct, as found at <http://regents.umn.edu/policies/index>. Further, students employed at the University are governed by the University's Code of Conduct; see <http://regents.umn.edu/policies/index>.

Responsible Conduct of Research

All members of the University of Minnesota are expected to exemplify the highest standards of integrity and ethical conduct. Board of Regents policies require that all faculty and principal investigators complete instruction in the Responsible Conduct of Research and Scholarship (RCR) as a prerequisite for the receipt of sponsored project funding. Graduate students who are recipients of a grant or a fellowship must complete RCR instruction during the initial budget period of the grant or fellowship, or during the first twelve (12) months of the grant or fellowship, whichever is shorter. In support of the policies, the University has developed a comprehensive curriculum of information, instructional materials, workshops, and contacts to help faculty members meet the challenge of responsible conduct in research and scholarship.

The RCR curriculum consists of one or more online workshops. Records of completion of all training are tracked electronically.

Information about classes in the responsible conduct of research and registration instructions may be found <http://research.umn.edu/reo/education/core.html>.

If your research involves human or animal subjects, work must be reviewed and approved by the appropriate oversight board BEFORE you the project begins. Students' advisors will assist with this process. For more information, see the University's Human Research Protection Programs (<http://www.research.umn.edu/irb/>) and the Institutional Animal Care and Use Committee (<http://www.research.umn.edu/iacuc/>).

Leaves of Absence

Graduate students are expected to maintain active status through continuous registration from the time they matriculate until they graduate. However, some students may need to interrupt their enrollment for reasons beyond their control. Students who are not able to maintain active status are strongly encouraged to consult with their Director of Graduate Studies, advisor, and relevant offices to determine whether requesting a leave of absence is the most appropriate course of action. Students who do not have an approved leave of absence and are not continuously enrolled may experience negative consequences related to academic, visa, financial aid, and other student issues.

Per the University's administrative policy on [Leave of Absence and Reinstatement from a Leave: Graduate Students](#), the Graduate Program in Oral Biology is developing program policies and procedures for requesting a leave of absence.

Leaves of absence represent a total separation from the University and students on an official leave are not allowed to be doing work at the University. A leave of absence requires cessation of all course work, laboratory responsibilities, and research. Other, less drastic, options may be more appropriate if a student needs to reduce workload. Consult program staff for more options.

VI. Employment and Funding

Work-Related Policies

Some Oral Biology graduate students fund their studies through Research or Teaching Assistant positions at the University. These positions are negotiated individually and the Graduate Program in Oral Biology does not oversee them. It is the student's responsibility to work with his/her advisor and the department handling the hiring paperwork. Assistance may be obtained from the University's Graduate Assistantship Office (<http://www1.umn.edu/ohr/gae/>). Inquiries concerning work-related policies should be directed to the Graduate Assistantship Office and/or Human Resources.

Graduate Assistantships

All graduate assistantships (teaching and research) are governed by the University's administrative policy on Graduate Assistant Employment. A system of graduate assistant employment is provided by the University for the primary purpose of providing financial assistance to graduate students and secondarily, to offer academic and career development opportunities to the same students. Conversely, employment of graduate students in assistantships supports the University in providing assistance to departments in carrying out certain tasks for which they are responsible. Graduate students are eligible to hold a graduate assistantship if they are admitted to a graduate school degree program or post-baccalaureate professional degree program and are registered for the minimum number of required credits for an assistantship held during Fall or Spring terms. Graduate assistantships provide tuition benefits, resident tuition rates, wages, and health insurance coverage. The amount of benefits provided by each assistantship is dependent on the type of position and number of hours worked. See the above policy and the Graduate Assistantship Employment Office (<http://www1.umn.edu/ohr/gae/>) for specific amounts. A graduate assistant is considered an employee of the University and each position should involve a formal offer letter and acceptance process.

Fellowships

Fellowships are available from several sources, including faculty grants, training grants, governmental organizations, private foundations, etc. Fellowships provide a stipend and may or may not have work expectations of the student recipients. Fellowships are not employment and stipends are not taxed. You may ask to have taxes withheld from your stipend; work with the School of Dentistry's Office of Human Resources to do this. Fellowships may or may not provide tuition benefits. Students are responsible for understanding all aspects and requirements of their fellowships.

Opportunities for Student Involvement

The Graduate Program in Oral Biology is always open to student suggestions and encourages students to share their ideas for ways to improve the program.

The Oral Biology seminar (OBIO 8030) is entirely student-organized. Each semester a student is chosen to lead the course. Students are usually selected based on seniority in the program. The student is responsible for developing the weekly schedule, inviting guest speakers, and coordinating with the DGS and DGS Assistant. All students are encouraged to give 6-month research seminars and final oral exams during the seminar to maximize participation by students and faculty.

The Graduate Program in Oral Biology elects a student representative to the Oral Biology Steering Committee each year. A large portion of the Steering Committee's duties involves applicant review. Students are not allowed to participate in applicant review, making the time commitment to this Committee very small. Oral Biology students elect their own representative to the Steering Committee without faculty input.

The School of Dentistry includes a graduate student on its Research Committee. Oral Biology students will elect their own representative to the Research Committee without faculty input. This student may be the same or different from the student serving on the Oral Biology Steering Committee. The Research Committee meets on an ad hoc basis and discusses Lasby fellowship applications, paper of the year awards, student summer research fellowship applications, and requests for funds.

There are additional opportunities for students to be involved in the University. Two groups that advocate on behalf of graduate students are COGS and the Professional Student Government (formerly GAPSA). The Council of Graduate Students (COGS) (www.cogs.umn.edu) represents the interests of all graduate students at the University of Minnesota, Twin Cities. COGS works with all components of the University community, especially the Graduate School and central administration, to make sure the needs of graduate students are known and addressed. COGS is an open and democratic organization comprised of graduate students from across the University. COGS provides opportunities for graduate students to participate actively in University administrative and policy-making decisions, as well as social and cultural programming and job training. Oral Biology students elect their own COGS representative without faculty input. COGS meets approximately once per month.

The Professional Student Government (PSG) (www.umnpsg.org/) was formerly known as the Graduate and Professional Student Assembly (GAPSA), a division of COGS. In 2015, COGS and GAPSA split, with COGS representing research students (MS and PhD) and PSG representing professional students (Law, Med, Dent, Vet, etc.). The PSG's official status within the University is still being determined.

VII. Departmental, Collegiate, and University Resources

Academic Policies

Academic policies abound at the University of Minnesota. Several have been cited elsewhere in this handbook. A compilation of all such policies with links to full text may be found at <http://www.policy.umn.edu/Policies/Education/index.htm>. The Graduate School website also maintains a list of relevant policies at <http://www.grad.umn.edu/about/policiesgovernance>.

Student Health Insurance

All students admitted to a degree program and registered for six or more credits per semester are required to have health insurance. Students are automatically enrolled in the University's Student Health Benefit Plan unless they have been enrolled in the Graduate Assistant Health Plan (RAs, TAs, fellowship recipients) or submit a waiver and proof of coverage by another U.S.-based, employer-sponsored group health plan. The Office of Student Health Benefits website provides all details, forms, and information about waivers and health plans at <http://www.shb.umn.edu/index.htm>.

University services & resources

The University has established an extensive support support network. The [OneStop](#) website is the best place to start searching for the support and resources you need. OneStop is where you register for courses, pay your bills, get your grades, and seek assistance. The "U Resources" tab is full of information for new and experienced students; all students are strongly encouraged to review the links and information on OneStop.

Graduate school can be daunting at times. The University is here to help you succeed. Please speak with a trusted colleague if you need help and take advantage of the University's counseling options. Two excellent resources are the [University Counseling & Consulting Services](#) and <http://mentalhealth.umn.edu/>. The [Office of Conflict Resolution](#) provides additional expert assistance with problems you may encounter.

Student groups are available for every interest you may have. Get involved and have some fun every now and then. Search for interesting groups at <http://sua.umn.edu/groups/>.

Graduate Program services & resources

The Graduate Program in Oral Biology provides general advising, paperwork, and guidance to students. Ask Program staff anything and we will do our best to point you in the proper direction and find the information you need.

E-mail is the standard form of communication by the Graduate Program in Oral Biology. Students are expected to check e-mail regularly and respond promptly to all communication by program staff and faculty. Help us help you by reading and responding to your e-mails!

Mailboxes are not provided by the Graduate Program in Oral Biology. The advisor's department or lab will usually provide a mail box for you. If mail is delivered to the Oral Biology program office, it will be placed in a mailbox labeled "OBIO Students." Students will be notified by e-mail when mail is received.

Technology Resources & Policies

Technology is everywhere at the University. Your first stop for any technological problem should be 1-HELP. Call them at 612-312-4357 or live chat with a guru at <http://www.oit.umn.edu/help/index.html>. Additional technology resources for students are listed at <http://www.oit.umn.edu/students/index.htm>.

Students are encouraged to become familiar with the University's policy on [Acceptable Use of Information Technology Resources](#) (includes user rights and responsibilities). Members of the University community are responsible for notifying their department or collegiate technical staff, helpdesk or supervisor if they suspect there has been a violation of University or departmental information security policy or if they suspect there may have been a security incident. Start by emailing abuse@umn.edu.

VIII. Graduate Faculty in Oral Biology

Responsibilities

All students and faculty in the Graduate Program in Oral Biology have responsibilities to each other. These responsibilities are generally discussed in the Graduate School's policy appendix on [Mutual Roles and Responsibilities for Faculty and Graduate Students: Guidelines](#).

The Graduate Program in Oral Biology is responsible for assisting students in meeting their requirements. Individual staff assist students in different ways.

- The Director of Graduate Studies (DGS) supervises and coordinates the administration of the program, serves as a point of contact for graduate students enrolled in the program, provides administrative linkage between the Graduate Faculty and the department or departments contributing to its programs, and acts as the liaison between the program and the administration of the School of Dentistry and Graduate School. The DGS is nominated by the graduate faculty and approved by the Dean of the Graduate School. In Oral Biology, the DGS serves a 3-year renewable term. Currently, the DGS for OBIO is Kim Mansky, PhD (kmansky@umn.edu, 612-626-5582). 2015-16 is the second year of Prof. Mansky's first term as DGS.
- The Oral Biology Steering Committee serves as the initial advisory group for incoming students, reviews applications, reviews annual student progress, assists in program guidance, reviews graduate faculty membership, selects block grant recipients, and develops fundraising campaigns. All recommendations of the Steering Committee are advisory to the DGS. Members of the 2015-16 Steering Committee will be finalized in September 2015. The DGS and DGS Assistant serve *ex officio*. New Steering Committee members are elected in September of each year; members serve 3-year staggered terms.
- The DGS Assistant is responsible for all student services, including advising and activities. The DGS Assistant coordinates annual student reviews, meets regularly with each student, orients new students to the curriculum and degree program milestones, manages the admissions process, coordinates the Graduate Faculty's membership and activities, manages student records, tracks the Program's budget, fellowships, and grants, and serves as the primary contact to the Graduate School's offices of Admissions, Student Services, and Fellowships. Ann Hagen (hagen055@umn.edu, 612-626-4483) is the current DGS Assistant.

Roles & Expectations

Faculty who directly advise students are expected to mentor the student throughout his/her entire career. Many University resources are available for advisors; see below.

All faculty, regardless of advising status, are expected to support students. In Fall 2007, the University surveyed Twin Cities graduate students about their experiences with academic incivility. Survey results were concerning and the University has developed resources for faculty and students to combat the prevalence of academic incivility. All faculty are strongly encouraged to review the resources available at http://www.sos.umn.edu/Staff-Fac/Acad_civility.html.

In addition to advising, faculty support students by serving on examination committees, reviewing writing preliminary exams, reviewing student applications, participating in Graduate Program governance, attending seminars, and collaborating on research projects.

Specific faculty roles include:

Advisor: The student's research supervisor.

Committee Chair: Leads the examination committee.

Committee member: Participates in a student examination by questioning the student.

Co-advisor: A secondary research supervisor or significant collaborator.

DGS: Director of Graduate Studies; responsible for the Graduate Program as a whole.

Director of Graduate Studies

This program policy on Director of Graduate Studies was approved and adopted by the Graduate Faculty in Oral Biology on 5/13/13.

Policy on Director of Graduate Studies

The Director of Graduate Studies (DGS) is elected from and by the Graduate Faculty in Oral Biology to lead the Graduate Program in Oral Biology.

1. RESPONSIBILITIES

The DGS is responsible for the following:

- Oversight of Program curriculum, including review and submission of curriculum changes, new and revised courses, and maintenance of existing courses.
- Providing students with orientation, program policies, program expectations, operational standards, and other necessary information.
- Assignment of advisers and provision of additional student advising as needed.
- Review, approval, tracking of student admissions, student progress, petitions, degree programs, and thesis committees.
- Management of graduate faculty appointments, including nomination, voting, continuation, and appointment of committee members external to the University.
- Program compliance with University and Graduate School policies and procedures.
- Maintenance of Graduate School Catalog and other program communication and marketing materials.
- Communication of Program status as needed with Graduate Faculty, students, and School of Dentistry administration.
- Administration of Program personnel, files, budget, and daily operations.

2. QUALIFICATIONS

The DGS must be a member in good standing of the Graduate Faculty in Oral Biology with experience (preferably at least 3 years) in teaching graduate level courses, advising graduate students, and serving on graduate examining committees, preferably as Chair.

3. SELECTION AND TERM

Candidates for DGS may be nominated by members of the Graduate Faculty in Oral Biology or self-nominated. In the absence of faculty nominations, the DGS may be selected by the Dean of the School of Dentistry. DGS nominees will first be reviewed by the Oral Biology Steering Committee to verify they fulfill the basic qualifications for the position, and then will be elected by the entire Graduate Faculty in Oral Biology with a simple majority required for election. Voting will be conducted in person at a meeting of the Graduate Faculty in Oral Biology. Faculty members unable to attend will need to e-mail or otherwise provide their votes in advance of the meeting. The DGS will serve a 3-year term that may be extended by faculty re-election or reappointment by the Dean if there are no other nominees.

4. REPORTING

The DGS will report to the School of Dentistry's Dean or Dean's designee and indirectly to the Dean of the School of Dentistry. The DGS will also confer with the Graduate Program's Steering Committee as needed, as well as any Graduate School committees mandated by the Dean of Graduate Education.

5. REMOVAL AND TERMINATION

The DGS may resign voluntarily from the position at any time. If the Graduate Faculty determines the DGS is unable or unwilling to execute the responsibilities of the position, a simple majority vote will terminate the appointment. An interim DGS may be appointed by the School of Dentistry's Dean or Dean's designee until a nomination and election process can be conducted as described above.

Policies

Several University policies (in addition to HR policies) apply to faculty involved in graduate education:

- [Appointments to Graduate Education Committees](#)
- [Appointments as Director of Graduate Studies](#)
- [Grade Accountability: Twin Cities, Crookston, Morris, Rochester](#)
- [Grading and Transcripts: Twin Cities, Crookston, Morris, Rochester](#)
- [Teaching and Learning: Instructor and Unit Responsibilities \(Twin Cities, Crookston, Morris, Rochester\)](#)

Faculty Membership, Application & Review

This program policy on Faculty Membership was approved and adopted by the Graduate Faculty in Oral Biology on 11/12/12.

The Graduate Faculty in Oral Biology hold appointments in many schools and departments across the University and offer a wide range of expertise in various disciplines within oral biology. Tenured, tenure-track, and non-tenure track faculty may serve on the Graduate Faculty.

1. MEMBER RESPONSIBILITIES

All members of the Graduate Faculty in Oral Biology may

- serve as primary advisor for doctoral and masters students,
- serve on doctoral and masters exam committees,
- chair doctoral and masters exam committees, as allowed by University policy,
- teach graduate courses in Oral Biology, and
- participate in Graduate Program governance.

Faculty who do not have demonstrated experience in advising PhD students are encouraged to gain such experience through co-advising opportunities, committee service, regular attendance at Oral Biology seminars, and interaction with students.

All faculty are required to participate in mentoring instruction and continuing mentor education on an ongoing basis.

2. APPLICATION PROCESS

Individuals seeking membership on the Graduate Faculty in Oral Biology must submit application documents and present a seminar during a regular meeting of OBIO 8030.

Documents to be submitted include:

- letter of intent
- CV or biosketch,

- summary of the applicant's grant history and current support
- applicant's current and past trainees, including current positions of past trainees
- description of applicant's current research program and training opportunities in the lab

The seminar is intended to introduce the applicant to the faculty and current students, providing a detailed description of the applicant's current research. Faculty members attending the seminar will be asked to critique the applicant.

Review of application materials is conducted by both the Oral Biology Steering Committee and the full Graduate Faculty in Oral Biology. Factors to be considered include:

- Established, extramurally supported research program relevant to Oral Biology
- Commitment to strong research training in spirit of the program, including interdisciplinary minors and related fields
- Past record of training students and their current placements
- Research published in peer-reviewed journals
- Presentations made at national and international science meetings, especially those related to craniofacial/oral biology research

The relative importance and application of each of the criteria above will be assessed on an individual basis, based on the applicant's experience and training.

Applications are voted on by the full Graduate Faculty in Oral Biology at regularly scheduled faculty meeting. The vote is conducted via paper ballot. Faculty members not able to attend the meeting, which is announced in advance, may e-mail or otherwise submit a vote in advance of the meeting. Votes submitted after the meeting will not be considered. The School of Dentistry's Associate Dean for Advanced and Graduate Education notifies the Graduate School of any changes to Graduate Faculty membership.

Graduate Faculty membership categories are maintained and monitored by the Graduate Program itself.

3. REVIEW OF FACULTY MEMBERSHIP

The membership status of Graduate Faculty will be reviewed at five-year intervals. The criteria for reappointment are the same as those for initial appointment. In addition, service to the Graduate Program is a major factor in the reappointment decision. Graduate Faculty who do not perform service to the Graduate Program will not be renewed.

Service to the Graduate Program may include, but is not limited to, the following:

- Advising students
- Teaching courses
- Serving on exam committees
- Serving as DGS
- Seminar attendance and participation
- Review of applicant materials
- Review of preliminary written examinations
- Participation in Graduate Program governance
- Presentation at Graduate Program symposia or other special events

Membership status is reviewed by the Oral Biology Steering Committee, which will request updated application documents from each faculty member to be reviewed. Faculty members to be reviewed will have at least three weeks to submit updated materials. Faculty members under review will also be required to present a seminar on their current research during the regular Oral Biology Seminar (OBIO 8030).

Selection, appointment, and review of the Director of Graduate Studies is addressed in a separate policy.

Course proposals and review

With the reorganization of the Graduate School, each graduate program must now publish its own standards and processes for developing, reviewing, and approving new or changed courses. The School of Dentistry must similarly publish its own processes for approving new or changed courses. This work is ongoing.

Program/plan changes

With the reorganization of the Graduate School, each college must now publish its own standards and processes for developing, reviewing, and approving new, changed or discontinued academic plans or sub-plans. This work is ongoing.

Annual Review of Student Progress

Per the University's administrative policies on [Doctoral Degree: Performance Standards and Progress](#) and [Master's Degree: Performance Standards and Progress](#), the Graduate Program must review student progress annually and provide the review's results in writing to the student. Therefore, student progress is reviewed annually by the Oral Biology Steering Committee. Each August, students will be asked to submit progress reports containing the following information:

- All courses taken in the past academic year,
- All courses planned for the upcoming academic year,
- Progress towards preliminary exams and thesis completion and defense, including dates scheduled or planned,
- Summary of progress in research project, and
- Specific issues for discussion with the Steering Committee.

Students must attach copies of abstracts and papers published in the last year and indicate conference details (dates, name of conference, etc.). **Progress reports must be signed by the students' advisors.**

Meetings with the Steering Committee will briefly discuss student progress and plans. Students are encouraged to meet with the DGS Assistant throughout the year to provide updates on progress.

Each year, students will be provided with individual letters summarizing the degree progress made to date and the specific recommendations of the Steering Committee.

Advising

Research has shown that there is a high correlation between the quality of advising and graduate student success. The University of Minnesota is promoting best advising practices through its Work Group on Advising and Mentoring. Resources for faculty and students are available at <http://gradvising.umn.edu/index.html>.

IX. Important Contacts

Graduate Program in Oral Biology			
Name	Phone	E-mail	Campus Mail
Kim Mansky, DGS	612-626-5582	kmansky@umn.edu	16-108B Moos Tower
Ann Hagen, DGS Assistant	612-626-4483	hagen055@umn.edu	17-160 Moos Tower
University Resources			
Computer labs	http://www.oit.umn.edu/computer-labs/		
Council of Graduate Students (COGS)	http://www.cogs.umn.edu		
Disability Resource Center	https://diversity.umn.edu/disability/		
Graduate Assistant Employment Office	http://www1.umn.edu/ohr/gae/		
Graduate School	http://www.grad.umn.edu		
Graduate School Catalog	http://www.catalogs.umn.edu/grad/index.html		
Graduate Student Services and Progress Office	http://www.grad.umn.edu/current-students/gssp		
Graduate School Forms	http://www.grad.umn.edu/students/forms/index.html		
International Student and Scholar Services	http://www.iss.umn.edu/		
Minnesota English Language Program	http://cce.umn.edu/Minnesota-English-Language-Program/		
Parking and Transportation	http://www1.umn.edu/pts/		
Registration	http://www.myu.umn.edu		
Office of Student Finance/Financial Aid	http://onestop.umn.edu/contact_us/for_faculty_and_staff/student_finance.html		
Office of Student Health Benefits	http://www.shb.umn.edu/index.htm		
Student Conflict Resolution Center	http://www.sos.umn.edu/		
University Counseling and Consulting Service	http://www.uccs.umn.edu/index.html		
Office for Conflict Resolution (formerly grievance office)	http://www1.umn.edu/ocr/		
Center for Writing	http://writing.umn.edu/		

The information in this handbook and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

APPENDIX

Emphasis in Biomaterials and Biomechanics

The curriculum for this emphasis will provide the student with the required scientific background for further study of physical, chemical, and engineering sciences related to dentistry.

RECOMMENDED COURSES

minor in Biomedical Engineering, emphasizing biomaterials:

BMEN 5001	Advanced Biomaterials	3 credits
BMEN 5041	Tissue Engineering	3 credits
BMEN 5401	Advanced Biomedical Imaging	3 credits
BMEN 8602	Biomedical Engineering Seminar	1 credit
BMEN 8001	Polymeric Biomaterials	3 credits
BMEN 8431	Controlled Release: Materials, Mechanisms, Models	3 credits
GCD 8136	Techniques of Biological Electron Microscopy	4 credits
MATS 5221	Introduction to Polymer Chemistry	3 credits
MATS 5517	Electron Microscopy	3 credits
ME 5427	Stress Analysis, Sensing, and Transducers	3 credits
OBIO 8023*	Physical Biology of the Oral Cavity	2 credits
OBIO 8027*	Biomaterials in Regenerative Dentistry	2 credits
PUBH 6450	Biostatistics I	4 credits

minor in Biomedical Engineering, emphasizing biomechanics:

BMEN 5201	Advanced Biomechanics	3 credits
BMEN 5151	Introduction to BioMEMS & Medical Microdevices	2 credits
BMEN 5041	Tissue Engineering	3 credits
BMEN 5401	Advanced Biomedical Imaging	3 credits
BMEN 8602	Biomedical Engineering Seminar	1 credit
MATS 8004	Mechanical Properties	3 credits
MATS 8216	Contact and Fracture Mechanics	3 credits
ME 5427	Stress Analysis, Sensing, and Transducers	3 credits
OBIO 8023*	Physical Biology of the Oral Cavity	2 credits
OBIO 8027*	Biomaterials in Regenerative Dentistry	2 credits
PUBH 6450	Biostatistics I	4 credits

For engineers desiring additional biological sciences coursework:

BMEN 5501	Biology for Biomedical Engineers	3 credits
BIOC 5001	Biochemistry, Molecular, and Cellular Biology	5 credits
PHSL 5061	Principles of Physiology for Biomedical Engineering	4 credits

For clinicians/biologists desiring additional background for engineering courses:

MATH 1281	Calculus with Biological Emphasis I	4 credits
MATH 1282	Calculus with Biological Emphasis II	4 credits

*All PhD students in the Oral Biology graduate program, regardless of track, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8020-8028, 8371), and register and participate in the oral biology student seminar series (OBIO 8030) each.

CONTACTS

Prof. Kim Mansky, Director of Graduate Studies (DGS)
16-262B Moos Tower
kmansky@umn.edu

Ann Hagen, Assistant to the DGS
17-160 Moos Tower
hagen055@umn.edu

Prof. Conrado Aparicio, Track Advisor
16-250A Moos Tower
apari003@umn.edu

BIOMATERIALS & BIOMECHANICS FACULTY

[Conrado Aparicio, PhD](#)

[Ralph DeLong, DDS, PhD](#)

[Alex Fok, PhD](#)

[Thorsten Gruenheid, DDS, PhD](#)

[Wook-Jin Seong, DDS, PhD](#)

CALENDAR**Year 1**

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BMEN 5001	3 cr	BMEN 8001	3 cr	Summer enrollment is optional. <i>Total credits: 0</i>	
BMEN 8601	1 cr	BMEN 8602	1 cr		
OBIO 802x	2 cr	OBIO 802x	2 cr		
OBIO 8030	1 cr	OBIO 8030	1 cr		
<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>7</i>		

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	BMEN 8602	1 cr	Summer enrollment is optional. <i>Total credits: 0</i>	
BMEN 5401	3 cr	OBIO 802X	2 cr		
BMEN 8601	1 cr	OBIO 8030	1 cr		
OBIO 802X	2 cr	PUBH 6450	4 cr		
OBIO 8030	1 cr	Oral prelim. exam (by month 18)			
Written prelim. exam					
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>8</i>		

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>		

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing Final oral examination	
OBIO 8888	8 cr	Month 43: 6 month seminar			
Research		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Emphasis in Bone Biology

Students interested in pursuing a career in skeletal biology, craniofacial development, and tissue engineering will follow this emphasis. After completion of the curriculum, students will be familiar with skeletal and bone biology, and have basic knowledge of molecular, cellular, and oral biology. They will also be equipped to perform research on both basic and clinical aspects of skeletal biology, craniofacial development, and tissue engineering.

RECOMMENDED COURSES

if minor in Microbiology, Immunology & Cancer Biology (MICaB):

BMEN 5041	Tissue Engineering	3 credits
GCD 5036	Molecular Cell Biology	3 credits
MICA 8004	Cellular and Cancer Biology	4 credits
MICA 8007	Cell Biology and Biochemistry of the Extracellular Matrix	3 credits
MICA 8009	Biochemical Aspects of Normal and Abnormal Cell Growth and Cell Death	2 credits
MICA 8910	Seminar: Faculty Research Topics	0 credits
OBIO 8012*	Basic Concepts in Skeletal Biology	2 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits
STAT 5021	Statistical Analysis	4 credits

if minor in Molecular, Cellular, Developmental Biology & Genetics (MCDB&G):

BIOC 8002	Molecular Biology and Regulation of Biological Processes	3 credits
BMEN 5041	Tissue Engineering	3 credits
GCD 5036	Molecular Cell Biology	3 credits
GCD 8073	Advanced Human Genetics	3 credits
GCD 8161	Advanced Developmental Biology	3 credits
MICA 8007	Cell Biology and Biochemistry of the Extracellular Matrix	3 credits
OBIO 8012*	Basic Concepts in Skeletal Biology	2 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits
STAT 5021	Statistical Analysis	4 credits

*All PhD students in the Oral Biology graduate program, regardless of emphasis, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371), and register and participate in the oral biology student seminar series (OBIO 8030) each semester.

CONTACTS

Prof. Kim Mansky, Director of Graduate Studies (DGS) and Track Advisor
16-262B Moos Tower
kmansky@umn.edu

Ann Hagen, DGS Assistant
17-164 Moos Tower
hagen055@umn.edu

REPRESENTATIVE FACULTY

[Mansur Ahmad, BDS, PhD](#)
[Rajaram Gopalakrishnan, BDS, PhD](#)
[Thorsten Greunheid, DDS, PhD](#)
[Erik Jensen, PhD](#)
[Kim Mansky, PhD](#)

[Anna Petryk, MD](#)

CALENDARS

Option 1A: Minor in MICaB starting in even-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
GCD 5036	3 cr	MICA 8004	4 cr	Summer enrollment is optional.	
MICA 8002	4 cr	MICA 8910	0 cr		
OBIO 802x	2 cr	OBIO 8012	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8028	2 cr	STAT 5021	4 cr
		OBIO 8030	1 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr.	MICA 8007	3 cr	Summer enrollment is optional.	
MICA 8910	0 cr	MICA 8009	2 cr		
OBIO 8371	3 cr	MICA 8910	0 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8030	1 cr	OBIO 8888	6 cr.
		Written prelim. exam			
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6 cr</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Information in this document is subject to change. Students are responsible for verifying information with their advisors and all relevant departments.

Option 1B: Minor in MICaB starting in odd-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
GCD 5036	3 cr	MICA 8004	4 cr	Summer enrollment is optional.	
MICA 8002	4 cr	MICA 8910	0 cr		
OBIO 8371	3 cr	OBIO 8012	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	<i>11</i>	<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
MICA 8910	0 cr	MICA 8009	2 cr		
OBIO 802X	2 cr	MICA 8910	0 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8028	2 cr	OBIO 8888	6 cr.
		OBIO 8030	1 cr		
		Written prelim. exam		If prelims not completed:	
		Oral prelim. exam (by month 18)		OBIO 8666	6 cr.
<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>10</i>	OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 2A: Minor in GCD starting in even-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BIOC 8002	4 cr	GCD 8161	3 cr	Summer enrollment is optional.	
GCD 5036	3 cr	OBIO 8012	2 cr		
OBIO 8030	1 cr	OBIO 802x	2 cr	OBIO 8027	2 cr
		OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	8	<i>Total credits:</i>	8	<i>Total credits:</i>	6

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
GCD 8073	3 cr	OBIO 8028	2 cr		
OBIO 802X	2 cr	OBIO 8030	1 cr	If prelims completed:	
OBIO 8030	1 cr	Written prelim. exam		OBIO 8888	6 cr.
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	9	<i>Total credits:</i>	6	<i>Total credits:</i>	6

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
				OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)
<i>Total credits:</i>	9	<i>Total credits:</i>	9		

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	1	<i>Total credits:</i>	1		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 2B: Minor in GCD starting in odd-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BIOC 8002	4 cr	GCD 8161	3 cr	Summer enrollment is optional.	
GCD 5036	3 cr	OBIO 8012	2 cr		
OBIO 802x	2 cr	OBIO 8028	2 cr	OBIO 8027	2 cr
OBIO 8030	1 cr	OBIO 8030	1 cr	STAT 5021	4 cr
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
BMEN 5041	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
GCD 8073	3 cr	OBIO 802X	2 cr		
OBIO 802X	2 cr	OBIO 8030	1 cr	If prelims completed:	
OBIO 8030	1 cr	Written prelim. exam		OBIO 8888	6 cr.
		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	6 cr		
				OBIO 8888	4 or 10 cr (depends on # taken in Summer 2)
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>10</i>		

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Emphasis in Epithelial Biology and Carcinogenesis

PhD students who wish to focus their research and scholarship on the pathobiology of the mucosal epithelium will be well prepared if guided by this recommended program. Students should choose one of the recommended academic minors and follow the suggested calendar. Each calendar paces the student through the program and targets completion of the PhD program in 48 months.

RECOMMENDED COURSES

minor in Microbiology, Immunology & Cancer Biology (MICaB):

GCD 5036	Molecular Cell Biology	3 credits
MICA 8004	Cellular and Cancer Biology	4 credits
MICA 8010	Microbial Pathogenesis	3 credits
MICA 8910	Seminar: Faculty Research Topics	0 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits

minor in Molecular, Cellular, Developmental Biology & Genetics (MCDB&G):

BIOC 8002	Molecular Biology and Regulation of Biological Processes	3 credits
GDC 8131	Advanced Genetics	3 credits
GCD 8151	Cell Structure and Function	3 credits
OR	GCD 5036 Molecular Cell Biology	3 credits
GCD 8161	Advanced Developmental Biology	3 credits

*All PhD students in the Oral Biology graduate program, regardless of emphasis, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371), and register and participate in the oral biology student seminar series (OBIO 8030) each semester.

CONTACTS

Prof. Kim Mansky, Director of Graduate
Studies (DGS)
16-262B Moos Tower
kmansky@umn.edu

Ann Hagen, DGS Assistant
17-164 Moos Tower
hagen055@umn.edu

Prof. Mark Herzberg, Track Advisor
17-164 Moos Tower
mcherzb@umn.edu

REPRESENTATIVE FACULTY

[Alvin J. Beitz, PhD](#)
[Massimo Costalonga, DMD, PhD](#)
[Gary M. Dunny, PhD](#)
[Sven-Ulrik Gorr, PhD](#)
[Mark C. Herzberg, DDS, PhD](#)
[Karen Ross, PhD](#)
[Joel Rudney, PhD](#)
[Larry F. Wolff, DDS, PhD](#)

CALENDARS

Option 1: minor in MICAB

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
GCD 5036	3 cr	MICA 8004	4 cr	Summer enrollment is optional.	
MICA 8002	4 cr	MICA 8910	0 cr		
OBIO 802x	2 cr	OBIO 8028	2 cr	OBIO 8666	6 cr
OBIO 8030	1 cr	OBIO 8030	1 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
MICA 8010	3 cr	MICA 8009	2 cr	Summer enrollment is optional.	
MICA 8910	0 cr	MICA 8910	1 cr		
OBIO 802X	2 cr	OBIO 802X	2 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8030	1 cr	OBIO 8888	6 cr.
STAT 5021	4 cr	Oral prelim. exam (by month 18)		If prelims not completed:	
Written prelim. exam				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Information in this document is subject to change. Students are responsible for verifying information with their advisors and all relevant departments.

Option 2: minor in MCDB&G

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
BIOC 8002	4 cr	GCD 8161	3 cr	Summer enrollment is optional.	
GCD 5036	3 cr	OBIO 8012	2 cr		
OBIO 802x	2 cr	OBIO 8030	1 cr	OBIO 8666	6 cr
OBIO 8030	1 cr	STAT 5021	4 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
GCD 8073	3 cr	MICA 8007	3 cr	Summer enrollment is optional.	
OBIO 8371	3 cr	OBIO 802X	2 cr		
OBIO 8030	1 cr	OBIO 8030	1 cr	If prelims completed:	
Written prelim. exam		Oral prelim. exam (by month 18)		OBIO 8888	6 cr.
				If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Emphasis in Microbiology and Immunology

The Microbiology and Immunology emphasis is intended for those students interested in the microbial infections and host responses that impact the head and neck. The coursework in this emphasis area is flexible in order to accommodate the diverse research areas represented.

RECOMMENDED COURSES

minor in Microbiology, Immunology & Cancer Biology (MICaB):

MICA 8002	Structure, Function, and Genetics of Bacteria and Viruses	4 credits
MICA 8003	Immunity and Immunopathology	4 credits
MICA 8004	Cellular and Cancer Biology	4 credits
MICA 8010	Microbial Pathogenesis	3 credits
MICA 8910	Seminar: Faculty Research Topics	0 credits
OBIO 8018	Oral Pathobiology	2 credits
OBIO 8021*	Oral Microbiology	2 credits
OBIO 8026*	Salivary Glands and Secretions	2 credits
OBIO 8028*	Molecular Basis of Cellular and Microbial Adhesion	2 credits

*All PhD students in the Oral Biology graduate program, regardless of emphasis, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8020-8028, 8371), and register and participate in the oral biology student seminar series (OBIO 8030) each semester.

CONTACTS

Prof. Kim Mansky, Director of Graduate Studies (DGS)
16-262B Moos Tower
kmansky@umn.edu

Ann Hagen, Assistant to the DGS
17-160 Moos Tower
hagen055@umn.edu

Prof. Louis M. Mansky, Track Advisor
18-242 Moos Tower
mansky@umn.edu

REPRESENTATIVE FACULTY

[Massimo Costalonga, DMD, PhD](#)

[Wei Zhang, PhD](#)

[Sven-Ulrik Gorr, PhD](#)

[Shelley Grimes, PhD](#)

[Mark C. Herzberg, DDS, PhD](#)

[Paul Jardine, PhD](#)

[Louis Mansky, PhD](#)

[Karen Ross, PhD](#)

[Joel Rudney, PhD](#)

Option 1A: starting in even-number year

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
MICA 8003	4 cr	MICA 8003	4 cr	Summer enrollment is optional.	
MICA 8010	3 cr	MICA 8004	4 cr		
OBIO 8026	2 cr	OBIO 802x	2 cr	OBIO 8666	6 cr
OBIO 8030	1 cr	OBIO 8030	1 cr		
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>11</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
MICA 8002	4 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8021	2 cr	Statistics	4 cr		
OBIO 8030	1 cr	MICA 8910	0 cr	If prelims completed:	
OBIO 8371	3 cr	Electives/research	1-3 cr	OBIO 8888	6 cr.
		Written prelim. exam		If prelims not completed:	
		Oral prelim. exam (by month 18)		OBIO 8666	6 cr.
<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6-8</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Option 1B: starting in odd-number year

Information in this document is subject to change. Students are responsible for verifying information with their advisors and all relevant departments.

Year 1

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
MICA 8003	4 cr	MICA 8004	4 cr	Summer enrollment is optional.	
OBIO 8021	2 cr	OBIO 8028	2 cr		
OBIO 8030	1 cr	OBIO 8030	1 cr	OBIO 8666	6 cr
OBIO 8371	3 cr				
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>7</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
MICA 8002	4 cr	MICA 8910	0 cr	Summer enrollment is optional.	
MICA 8010	3 cr	OBIO 8030	1 cr		
OBIO 8026	2 cr	STAT 5021	4 cr	If prelims completed:	
OBIO 8030	1 cr	Electives/research	1-3 cr	OBIO 8888	6 cr.
		Written prelim. exam		If prelims not completed:	
		Oral prelim. exam (by month 18)		OBIO 8666	6 cr.
<i>Total credits:</i>	<i>10</i>	<i>Total credits:</i>	<i>6-8</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

Emphasis in Sensory Neuroscience

Emphasizing sensory neuroscience is appropriate for PhD students who intend to pursue research careers in the study of pain and sensory neuroscience in a craniofacial context. Students will find this emphasis provides sufficiently fundamental training to prepare them to develop interfaces with other areas of neuroscience and biology.

RECOMMENDED COURSES

NSC 5461	Cellular and Molecular Neuroscience	4 credits
NSC 5561	Systems Neuroscience	4 credits
NSC 5661	Behavioral Neuroscience	3 credits
NSC 8211	Developmental Neuroscience	3 credits
OBIO 8022*	Oral Neuroscience	2 credits

Additional electives to consider:

NSC 5201	Computational Neuroscience	3 credits
NSC 8217	Systems and Computational Neuroscience	2 credits
NSC 8221	Neurobiology of Pain and Analgesia (offered every 3 rd year)	3 credits
NSC 8320	Readings in Neuroscience, Pain Journal Club	1-4 credits
NSC 8481	Advanced Neuropharmaceutics	3 credits

*All PhD students in the Oral Biology graduate program, regardless of emphasis, must satisfactorily complete 8 credits of oral biology topics courses (OBIO 8020-8028), and register and participate in the oral biology student seminar series (OBIO 8030) each semester.

CONTACTS

Prof. Kim Mansky, Director of Graduate Studies (DGS)

16-262B Moos Tower

kmansky@umn.edu

Ann Hagen, Assistant to the DGS

17-160 Moos Tower

hagen055@umn.edu

TBD, Track Advisor

REPRESENTATIVE FACULTY

[Alvin J. Beitz, PhD](#)

[David A. Bereiter, PhD](#)

[Apostolos P. Georgopoulos, MD, PhD](#)

[Donald A. Simone, PhD](#)

CALENDAR**Year 1**

Fall	<i>Months 1-4</i>	Spring	<i>Months 5-9</i>	Summer	<i>Months 10-12</i>
NSC 5461	4 cr	NSC 5661	3 cr	Summer enrollment is optional.	
NSC 5561	4 cr	NSC 8211	3 cr		
OBIO 8030	1 cr	NSC 8320	1 cr	OBIO 8666	6 cr
		OBIO 8030	1 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>8</i>	<i>Total credits:</i>	<i>6</i>

Year 2

Fall	<i>Months 13-16</i>	Spring	<i>Months 17-21</i>	Summer	<i>Months 22-24</i>
NSC 8221 (if avail.)	3 cr	NSC 8320	1 cr	Summer enrollment is optional.	
NSC 8320	1 cr	OBIO 802X	2 cr		
OBIO 802X	4 cr	OBIO 8022	2 cr	If prelims completed:	
OBIO 8030	1 cr	OBIO 8030	1 cr	OBIO 8888	6 cr.
Written prelim. exam		Oral prelim. exam (by month 18)		If prelims not completed:	
				OBIO 8666	6 cr.
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>6</i>	<i>Total credits:</i>	<i>6</i>

Year 3

Fall	<i>Months 25-28</i>	Spring	<i>Months 29-33</i>	Summer	<i>Months 34-36</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Summer enrollment is optional.	
OBIO 8888	8 cr	OBIO 8888	8 cr		
<i>Total credits:</i>	<i>9</i>	<i>Total credits:</i>	<i>9</i>	OBIO 8888	2 or 8 cr (depends on # taken in Summer 2)

Year 4

Fall	<i>Months 37-40</i>	Spring	<i>Months 41-45</i>	Summer	<i>Months 46-48</i>
OBIO 8030	1 cr	OBIO 8030	1 cr	Dissertation writing	
Research		Month 43: 6 month seminar		Final oral examination	
		Month 45: Begin writing dissertation			
<i>Total credits:</i>	<i>1</i>	<i>Total credits:</i>	<i>1</i>		

All students, regardless of emphasis, must satisfy the following course requirements:

- Complete a major core curriculum of at least 24 credits.
- Complete 8 credits of oral biology topics courses (OBIO 8012, 8018, 8021-8028, 8371).
- Complete one statistics course (STAT 5021, PUBH 6450, PUBH 7445, or equivalent).
- Register and participate in the oral biology student seminar series (OBIO 8030) each semester for 10 semesters or until graduation, whichever comes first.
- Complete a designated minor (minimum 12 credits) in a nonclinical discipline.
- Register for 24 thesis credits (OBIO 8888) after passing the preliminary written and oral exams.

General Timeline for PhD Degree

	To-do	Forms required
Year 1	Begin coursework	
	Confirm advisor	
	Complete Responsible Conduct of Research training	
	Identify specific research project (by end of 1 st year)	
Year 2	Complete coursework	GRADUATE DEGREE PLAN due one semester prior to written preliminary exam
	Submit written preliminary exam	PRELIMINARY WRITTEN EXAMINATION REPORT (submitted by Program staff)
	Schedule oral preliminary examination	Notify Grad School via online scheduling system
	Complete oral preliminary exam by end of 2 nd summer	PRELIMINARY ORAL EXAM REPORT (directly sent to committee chair)
	Begin thesis research	
Year 3	Enroll in thesis credits	Request GRADUATION PACKET from Graduate School
Year 4	Complete 6-month seminar when you are approx. 6 months away from defending	
	Schedule final oral exam as early as possible!	Notify Grad School via online scheduling system
	Notify committee 2 weeks in advance of delivery of completed thesis	APPLICATION FOR DEGREE (found in graduation packet) to be filed no later than the first business day of the intended month of degree completion
	Deliver completed thesis 2 weeks in advance of final oral exam	THESIS REVIEWER'S REPORT (found in Graduation Packet)
	Notify DGS Assistant of Thesis defense 2 weeks in advance	
	Complete final oral examination/defense	FINAL ORAL EXAMINATION REPORT sent directly to committee chair
	Complete revision as necessary	
	Submit thesis to Graduate School via online system	DIGITAL CONSERVANCY DEPOSIT AGREEMENT

General Timeline for MS Degree

	To-do	Forms required
Year 1	Begin coursework	
	Confirm advisor	
	Complete minor coursework	
	Complete Responsible Conduct of Research training	
	Identify specific research project (by end of 1 st year)	GRADUATE DEGREE PLAN
<hr/>		
Year 2	Complete coursework	Request GRADUATION PACKET from Graduate School one term prior to defense
	Enroll in thesis credits	
	Notify committee 2 weeks in advance of delivery of completed thesis	APPLICATION FOR DEGREE (found in graduation packet) to be filed no later than the first business day of the intended month of degree completion
	Deliver completed thesis 2 weeks in advance of final oral exam	THESIS REVIEWER'S REPORT (found in Graduation Packet)
	Complete final oral examination/defense	FINAL ORAL EXAMINATION REPORT sent directly to committee chair
	Complete revision as necessary	
	Submit thesis to Graduate School via online system Due no later than last business day of the intended month of graduation	DIGITAL CONSERVANCY DEPOSIT AGREEMENT

Report of the Final Examination Committee

Student:

Name

ID#

Meeting date:

Committee members

Chair?	Name	Unit Represented

Describe student's progress since last meeting.

Is progress satisfactory?

What does student need to accomplish before next meeting?

Is student ready to present 6-month seminar?

Is student ready to defend thesis?

Chair's signature:

Date of next meeting
