

UNIVERSITY of LOUISVILLE

Master of Science in Oral Biology (MSOB) Degree

Program Guide

2016-2017



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**University of Louisville
School of Dentistry
Master of Science in Oral Biology Program**

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Major Code: **OBIOMS**

PROGRAM OVERVIEW

This program is designed for those interested in a career in **Oral Biology research**, either for its own sake or in combination with, or as an adjunct to, the DMD degree. This is a School of Interdisciplinary + Graduate Studies (SIGS) degree, and is offered through and administrated by the University of Louisville, School of Dentistry (ULSD). Successful students may have the option to further their studies at the doctoral level via the SIGS Interdisciplinary Studies Ph.D. program. The MS in Oral Biology degree is a research-based, full-time two year (or part-time for those already enrolled in a clinical program at ULSD) degree program that is intended to provide graduates with a comprehensive knowledge base that emphasizes contemporary biomedical basic sciences, and research that contributes to the scientific basis of clinical dentistry.

The *minimum* requirement for the MSOB degree is **30 semester hours** and the following guidelines apply:

- 1) **Didactic coursework.** At least 15 semester hours of didactic coursework are required of which 8 semester hours consist of the four required core courses (**OBIO 501** Biomedical Data Analysis; **OBIO 601** Introduction to Oral Biology Research; **OBIO 605** Oral Health Seminars; and **OBIO 606** Oral Biology Communication). The remaining semester hours in the program can be distributed as recommended and approved by the student's Thesis Advisor and the Program Director from courses selected from the Graduate Catalogue. At least one-half of the credits counting toward the degree (exclusive of thesis) must be in courses open to graduate students only (600 level or above).
- 2) **Thesis Research Requirements.** An additional fifteen semester hours are earned through work on the student's research project (OBIO 619 Research; and OBIO 620 Thesis) which are under the supervision of the Thesis Advisor and members of the student's Thesis Committee. Every student must complete a significant biomedical research project with the support and guidance of the Thesis Advisor and committee.

There are a wide range of possible areas for research training at ULSD including the following: molecular, cellular and craniofacial biology; biochemistry; craniomaxillofacial diagnostic imaging; craniofacial disorders; oral microbiology; biofilms; inflammation and immunology; cellular mechanisms of salivary gland secretion; protein expression and trafficking; interrelationships between oral and systemic disease; periodontology; dental materials science; orthodontics; endodontics; prosthodontics; oral and maxillofacial pathology; and health services research related to dentistry.

While the program can be tailored to the requirements of each individual student, curriculum design and course selection must be approved by the student's Thesis Advisor and the MSOB Program Director. Other course work may be required as individualized programs are developed by students working with their Thesis Advisor and Thesis Committee. The Thesis Committee also approves proposed thesis research, reviews the thesis research, reviews the thesis for acceptance, and administers a final oral examination.

The MSOB degree offers training particularly important to persons wishing to expand their knowledge and understanding of the basic sciences related to Oral Biology by doing biomedical research. The program is available to those students with a BA or BS degree wishing to obtain solely the MSOB degree (with the option to further their studies at the doctoral level via the SIGS Oral Biology Ph.D.), as well as to students currently enrolled in the D.M.D. degree program, and to persons who have previously earned a D.M.D., M.D., or equivalent degree .

APPLICATION TO THE PROGRAM

Information about application process is at Louisville/oralbiology/msob/admissions. Application for the program is online (<http://graduate.louisville.edu/sigs/apply>). All applications to the program must be submitted directly to the *University of Louisville, SIGS Office of Graduate Admissions*. No applications will be accepted directly by the Dental School or the Program Director.

MSOB Application Requirements and Deadlines

The MSOB program typically begins in the Fall semester. Individuals who will need time to arrange a US visa should apply one month before the deadline below. If an application is not complete by the deadline date, it may not be reviewed in time for registration. Students currently enrolled at ULSD in the DMD degree program who wish to also apply to the MS in Oral Biology Program should apply as early as possible during their first year (D1). Students previously accepted to the DMD program can apply to the MSOB anytime (rolling admission). All other students should apply by the following deadlines:

- **June 5th for students wishing to begin in the Fall semester (August)**
- **November 1 for students wishing to begin in the Spring semester (January)**

Each of the following credentials should be sent to the *Office of Graduate Admissions* at least **eight weeks** prior to the beginning of the semester in which the student wishes to enroll.

- 1) **Application for Admission.** Application forms may be obtained from the *Graduate School* or the *Office of Graduate Admissions*. The application must be accompanied by a **\$60.00** non-refundable application fee. The *Graduate School Application* may be submitted on-line via <http://graduate.louisville.edu/sigs/apply>, or [here](#). However, applications are not processed until the application fee is received.
- 2) **Transcripts and Grade Point Average.** The minimum requirement for admission is a baccalaureate degree or its equivalent from a regionally accredited institution. Official transcripts showing all degrees awarded on all undergraduate and all completed graduate and/or professional degree studies must be furnished at the time of application. All University of Louisville transcripts will automatically be submitted with the application. MS in Oral Biology Program applicants must have attained at least an overall grade point average (GPA) of 3.0 (on a 4-point scale) during undergraduate education, and during graduate education (e.g., dental school) if applicable, as described by the *University of Louisville Graduate School* catalogue. **However, note that the average GPA of accepted applicants has been above 3.5 in recent years.**

- 3) **Written Personal Statement.** Each applicant must submit a written personal statement explaining their reason(s) for seeking a research-based Oral Biology degree, as well as their educational goals and objectives. The statement should demonstrate the applicant's interest in research as evidenced by professional achievements, past research, relevant coursework, etc. *The written personal statement should be included with the application form.*
- 4) **Letters of Recommendation.** Two recent, favorable letters of recommendation from individuals who can speak to the applicant's academic and/or research capabilities and potential for study in the MSOB Program are required. The letters should be from current or recent teachers. (Letters of recommendation to other programs, e.g., dental school, dental residency programs, are **NOT** acceptable).
- 5) **Graduate Record Examination or Equivalent Scores.** Each applicant is required to take the General Test Section of the [Graduate Record Examination \(GRE\)](#) and must instruct the Educational Testing Service (ETS) to forward the results directly to the UofL Office of Graduate Admissions, Belknap Campus, University of Louisville; Louisville, Kentucky, 40292, U.S.A. The MS in Oral Biology Program requires the applicant's GRE scores to be greater than the 50th percentile for the Quantitative and Analytical Writing sections of the examination. Alternatively, Dental Aptitude Test (DAT) test scores are also acceptable. For consideration students must score at or above the national average in DAT test category #8 (Academic Average).
Finally, a terminal professional degree (DMD or MD) from a regionally accredited school in the USA is also accepted. Graduates from international Dental Schools may pass the [National Board Dental Examination Part I \(NBDEI\)](#) test as an alternative, however the GRE is preferred.

Additional Requirements for International Applicants

In addition to the 5 admissions standards above, international student applicants must meet the following criteria before they can be granted admission:

- 1) **Certification of Credentials by External Agency.** The MS in Oral Biology Program requires international applicants to submit their academic credentials for evaluation by an external agency certified by the American Association of Collegiate Registrars and Admissions Officers. A "Course-by-Course" evaluation is required, also showing the final degree has been awarded. Suggested providers of credential evaluations are Educational Credential Evaluators – www.ece.org, and World Education Services – www.wes.org. An official copy of an academic credentials evaluation must be sent directly from the evaluator organization.
- 2) **English language proficiency.** Students whose first language is not English or come from countries in which English is not the native language must show proficiency in English. International students holding a baccalaureate or advanced degree from an accredited institution in the United States are exempt from this requirement. Proficiency in English can be demonstrated by the following:
 - a. Submission of official **TOEFL** (Test of English Language Proficiency) iBT scores (www.toefl.org). *Note that strong preference is given to candidates with a minimum total score of 100 and with listening and speaking section scores at 26 or above. Successful applicants in recent years have an average TOEFL above 100.*
- 3) **Financial independence.** International students must present evidence of financial resources adequate to support their educational and living expenses in the United States for the duration of their studies (see Form I-20, or DS2019): <https://louisville.edu/graduate/futurestudents>). After the applicant is initially accepted into the MSOB program, the Financial Statement is requested as part of the US visa application process.

GUIDELINES FOR GRADUATE EDUCATION AT THE SCHOOL OF DENTISTRY

The MS in Oral Biology Program is subject to the guidelines for graduate education at the School of Dentistry. This is published on the School of Dentistry web site and available from the *Program Admissions* and *Program Administration* contacts or from the *Program Director*. The Oral Biology Graduate Program encompasses several tracks including MS degree tracks and PhD tracks. Students are not allowed to be enrolled in two MS degree tracks concurrently. Specifically, students may not overlap enrollment in the MS in Oral Biology and MS-Dentistry residency tracks. However, Dental students previously enrolled in the DMD program may apply to the MS in Oral Biology program concurrently to obtain the dual DMD/MSOB degree.

MS IN ORAL BIOLOGY DEGREE REQUIREMENTS

After successful admission into the Master of Science in Oral Biology Program, the candidate must select a Thesis Advisor who will mentor the student in their research. The Advisor will help the student choose an appropriate set of classes (Program of Study), define a significant research project, and select other faculty to serve on the Thesis Committee. The Thesis Advisor and Committee will guide the student through the research project and writing the thesis describing their research results.

Selection of a Thesis Advisor (Mentor)

The student is required to select a Thesis Advisor within one month (4 weeks) of the student's initial enrollment in the program. The research director must be accredited to mentor graduate students at ULSD. An approved Faculty list is provided at the end of the Program Guide. Written documentation of their selection (and acceptance) of a Thesis Advisor must be submitted to the Program Administrator (Gerard Buono) at this time. Prior to the time a graduate student enters into a thesis research arrangement with a faculty mentor/advisor, the Program Director will act as advisor, and will be available to assist the student in selecting courses and in pursuing possible areas of research interest.

It is important to note that students will not be arbitrarily assigned a research mentor/advisor. The mentor-student relationship must be mutual and voluntary. A subsequent change of mentor is possible only after approval of the Program Director.

Responsibilities of the Thesis Advisor and Thesis Committee

The duties of the Thesis Advisor include:

- 1) To serve as Chair of the student's Thesis Committee (see committee meetings below);
- 2) To advise and guide the student's academic curriculum choices as they pertain to their research needs;
- 3) To ensure appropriate safety and ethical training and clearances are in place;
- 4) To direct and evaluate research activities, and encourage publication;
- 5) To oversee and assist in preparing seminars and posters.

The student, in consultation with the research mentor, selects the thesis advisory committee. It is the role of the thesis advisory committee to act as the special reading committee of the research component of the Program. Acceptance of the thesis is at the sole discretion of the thesis advisory committee which is composed of the Thesis Advisor who acts as chair and at least three additional faculty members of professorial rank. All members of the thesis advisory committee must be accredited to mentor graduate students at ULSD. *The student is required to complete and submit the "Thesis/Dissertation Advisory Committee" form prior to the end of their first semester of enrollment.*

The Thesis Committee should meet as often as necessary, but minimally once every 12 months, to perform the following:

- 1) consult and advise on research design, methods, and techniques;
- 2) evaluate and approve the thesis research proposal;
- 3) consult and advise on data evaluation, interpretation, and research modifications;
- 4) consult and advise on thesis writing; and

5) attend the defense of the thesis research.

At such meetings, student progress and outlines of goals met and academic targets to be achieved should be recorded on the appropriate form and submitted to the Program Administrator (Gerard Buono). Student Progress forms are available at:

<http://louisville.edu/dentistry/degrees/oralbiology/student-forms-msob>

Approved Program of Study (Course List)

The student is required to develop a program of study (course list), with the consultation and approval of their Thesis Advisor, within 4 weeks of the student's initial enrollment in the program. The **Program Of Study** form must be approved by the MSOB Program Director (Dr. Darling) and submitted to the Program Administrator (Gerard Buono) at this time. The form for this purpose is provided at:

<http://louisville.edu/dentistry/degrees/oralbiology/student-forms-msob>

Any subsequent changes in the student's course of study must be approved by their Thesis Advisor and a copy of the revised plan is to be submitted for approval to the Program Director.

A minimum of **30 semester hours** of graduate credit is required for the master's degree. All students must take the 4 core courses (OBIO 501 Biomedical Data Analysis; OBIO 601 Introduction to Oral Biology Research; OBIO 605 Oral Health Seminars; and OBIO 606 Oral Biology Communication) and receive a grade of "B" or above to remain in the program. In addition, a grade point average (GPA) of 3.0 or better must be maintained to remain in good standing.

Residency for Masters Students

Masters students must take at least 24 hours of course work in residence at the University of Louisville to satisfy the residency requirement for the Masters degree.

Development of a Thesis Proposal

A MSOB student should prepare and present a written proposal for their research project to the Thesis Committee for discussion and approval. The research proposal should be prepared during the first semester in the program, and presented to the Thesis Committee during the second semester. Approval of the thesis proposal by the mentor and committee must be documented on a Student Progress form and submitted to the Program Administrator (Gerard Buono). Student Progress forms are available at:

<http://louisville.edu/dentistry/degrees/oralbiology/student-forms-msob>

Performance of Research

Once approved by the Thesis Committee, the student performs and develops the research according to the proposal. Clinical research involving human subjects may involve various approvals and submissions to Human Subjects Protection Program Office (<http://louisville.edu/research/humansubjects/>) including CITI (human subject protections training) and HIPAA and Research Fundamentals Training Course. The mentor is responsible for ensuring appropriate training for the student. It is the student's responsibility to frequently report to the advisor on the progress of the research and to discuss any problems or concerns.

Candidacy

Degree Candidacy is awarded to students who have completed all 30 hours of formal didactic, research and thesis hours but who are continuing to perform research for the Masters degree. Although all required courses must have been completed before entering Degree Candidacy, students have the option of taking additional specialized courses, e.g. courses offered by visiting or new faculty, while in Degree Candidacy. In those cases payment of both the candidacy fee and the course tuition will be required. Once a student is admitted to candidacy, registration in Degree Candidacy status must be continuously maintained year round (i.e., Fall, Spring, and Summer) until the degree is awarded.

Once a student enrolls in Degree Candidacy, in the following semester the Registrar will automatically enroll the student in Degree Candidacy. Failure to pay the candidacy fee will be cause to cancel a student's Degree Candidacy. In order to restore Degree Candidacy, the student must receive approval from the head of the graduate program. To re-establish Degree Candidacy, the student will be

required to pay the candidacy fee for each of the semesters during which candidacy was voided.

Thesis Preparation

After completion of the research, the Master of Science in Oral Biology candidate must present his/her research and acquired data to the Thesis Committee before writing his thesis. Students must arrange for an oral presentation of the research to the Thesis Committee. A copy of the results must be submitted to all committee members at least one week prior to the oral presentation. All members of the Thesis Committee must approve completion of the research phase and concur that the student should write the formal thesis.

The thesis must be prepared following the University format. For specific information concerning thesis preparation, the student should consult “*Guide to the Preparation of Theses and Dissertations*”, University of Louisville. This manual is available by request through the Graduate School or from the School’s Internet web site at: <https://graduate.louisville.edu/sigs/Programs/theses-dissertations>. **Students are strongly advised to seek early advice on thesis preparation and defense regulations** from the Senior Program Coordinator at the School of Graduate and Interdisciplinary Studies (Courtney Kerr).

At the beginning of the semester when a student plans on graduating, the student must complete the “Apply for Degree” form through [ULINK](https://louisville.edu/ulink). Deadlines for this form are at <http://louisville.edu/registrar/registration-information/special-dates> .

Thesis Defense

The thesis defense is the final examination prior to awarding the Master of Science in Oral Biology degree. It is expected that each student will carefully go over the thesis with their mentor prior to distribution of the thesis to the Thesis Committee. Students are expected to speak with all committee members about recommended changes of the thesis prior to the defense to assure that the thesis will be in final form at the time of the defense.

Degrees are awarded in August, December, and May. Candidates who expect to receive degrees on a particular award date must submit the online “[Request to Schedule Final Oral Defense Form](https://louisville.edu/registrar/registration-information/special-dates)” on or before the dates specified at <http://louisville.edu/registrar/registration-information/special-dates>.

Students completing the MS in Oral Biology Program must submit the thesis to their Thesis Advisor at least **4 - 8 weeks** in advance of the defense to allow time for revisions. The student must provide the revised thesis to the Thesis Committee at least 2 weeks before the oral examination. The committee shall complete its review of the thesis prior to the final oral examination. Acceptance of the thesis shall be at the discretion of the Thesis Committee.

The student is required to complete and submit the "Thesis/Dissertation Final Oral Examination Schedule" form not less than 2 weeks prior to the date of their final oral examination/defense.

The student is required to ensure that the thesis date is advertised throughout the School of Dentistry at least one week prior to defense date in order to ensure that the defense is “open”.

The student is required to submit a copy of their thesis title page, signed by the committee members, to the MS Oral Biology Program Director after the committee has accepted the final copy of the thesis.

The final thesis defense should consist of an open seminar, normally 45 to 50 minutes but not to exceed one hour in length and covering the research performed during the student's tenure, followed by a question and answer period. The seminar defense is open to the public (all faculty and graduate students are invited to attend all thesis defenses) and is followed by questions from the audience. Subsequently, there will be a closed meeting of the student with the Thesis Committee for the Oral Examination during which questions will be asked to define the student’s depth of understanding of the broad field of study. Subsequently, the Thesis Committee will vote as to whether the student passed the defense and what changes are required for the thesis. The student should also have available the Dissertation/Thesis Defense and Final Examination Report form for signing by the thesis committee at the defense.

An electronic copy of the accepted thesis, as signed by the thesis advisory committee members, must be deposited with the Office of the Graduate School. See [Electronic Thesis submission](#). See SIGS [deadlines for thesis](#) for due dates. *One bound copy* of the accepted thesis must be deposited with the *Program Administrator* of the MS in Oral Biology Program. Students are suggested to provide bound copies of the final thesis to each member of the Thesis committee.

The student is responsible for all expenses relating to preparation of the thesis.

Time Limitation

There is a time limit imposed by the University, stipulating that credit earned more than six years prior to the completion of the degree may not be counted toward meeting its requirements. This time period may be extended upon recommendation of the student's department chair and the approval of the Vice Provost for Graduate Affairs.

Application for degree:

At the beginning of the semester in which you plan to graduate, if you are planning to receive your MS in Oral Biology degree, you will need to fill out a degree application online. Check [ULink](#) (ulink.louisville.edu) for application periods when you are ready to apply. All candidates for degrees, whether or not participating in Commencement, must apply for degrees according to the deadlines.

After the online form is submitted, **you will receive an online confirmation that it was successful.** You will also receive confirmation by email to your university account. You will not hear anything regarding the status of your degree application until after the semester grades are in and an advisor in your enrollment unit can review for approval. If you have any questions regarding eligibility or qualification of degree requirements, please contact the *Program Administrator* (Gerard Buono).

Deadlines For Graduation:

	<u>Spring 2016</u>	<u>Fall 2016</u>	<u>Spring 2017</u>
Submit ' Application for Degree ' form (ULINK):	April 14	Sept 30	Feb 15
Submit ' Schedule Final Oral Defense ' form:	two to three weeks before the oral defense		
Give Thesis to Committee members:	no later than two weeks before the oral defense		
Submit final Thesis to Graduate School:	April 22	Dec 2	April 28

GRADING SYSTEMS

GPA

Grade-point averages (GPA) are calculated by dividing the quality points earned by the number of credit hours attempted with grade. A grade point average of 3.0 or better must be maintained.

Plus/Minus

The Graduate School has implemented a plus/minus grading system, to be utilized at the discretion of the individual professor. The plus/minus grading system can be used only for graduate students enrolled in courses available for Graduate School credit.

C Grades

The Director of the MS in Oral Biology Program may approve up to six hours of course work in which a grade of "C+, C, or C-" was received to count toward the completion of degree requirements. Approval of the Graduate Dean must be secured in order to count additional hours with any grade of "C" in any course required in the degree program. In no case may more than nine hours of "C" be used to fulfill graduate degree requirements. Although grades below "C-" will be calculated in the graduate student's grade point average, courses in which these grades have been earned will not count toward fulfillment of degree requirements.

The MS in Oral Biology program does not permit a course grade of "C+, C, or C-" to be used in fulfillment of degree requirements for courses listed as "major subject required courses" (core courses).

These are **OBIO 501** Biomedical Data Analysis; **OBIO 601** Introduction to Oral Biology Research; **OBIO 605** Oral Health Seminars; and **OBIO 606** Oral Biology Communication.

Pass/Fail

The Director of the MSOB Program, upon consultation with the individual course director, may extend a Pass/Fail option to any or all of its graduate students and graduate courses, subject to approval of the Graduate Council. When using the Pass/Fail option for graduate students enrolled in graduate courses, **A+** through **C-** will be passing grades and **D+** through **F** will be failing grades.

Other Grades

Other grades which the student may obtain include the following:

- 1) **W** “**W**” means *Withdrew* and carries no quality points. No student may withdraw from any course after mid-semester. In exceptional cases, the *Graduate Dean* may grant a student's request to withdraw from courses because of illness or conditions beyond the student's control.
- 2) **I** “**I**” means Work in Course *Incomplete*. If the work is not completed by the *end of the next term*, regardless of whether the student is enrolled, the “**I**” automatically becomes an “**F**”.
- 3) **X** “**X**” means course work has not been finished because of the nature of the research or study involved, e.g., thesis work.

Grade Changes

No grade changes can be made without a request and explanation on the part of the faculty member giving the grade and the approval of the *Program Director*.

Missing Grades

All missing grades will be changed to failing grades *one year* after the completion of the semester in which the course was taken.

Repetition of Courses

A student who has received the grade of “**C**” in a course that is a degree requirement, “**D**” or “**F**” may repeat that course upon the approval of the MS in Oral Biology Program *Director* and the *Graduate Dean*. When a student repeats a course, the grade point average will be calculated on the basis of the last grade earned, although the previous grades will remain on the transcript.

REQUIREMENTS FOR GRADUATION

Academic Course Requirements

Good Standing

All students are required to be in good standing in order to graduate. A graduate student is in good standing when his/her overall graduate grade point average and his/her program grade point average are each 3.0 or higher. A student must be in good standing in order to be graduated. Students must have at least 30 hours of course work in categories described above.

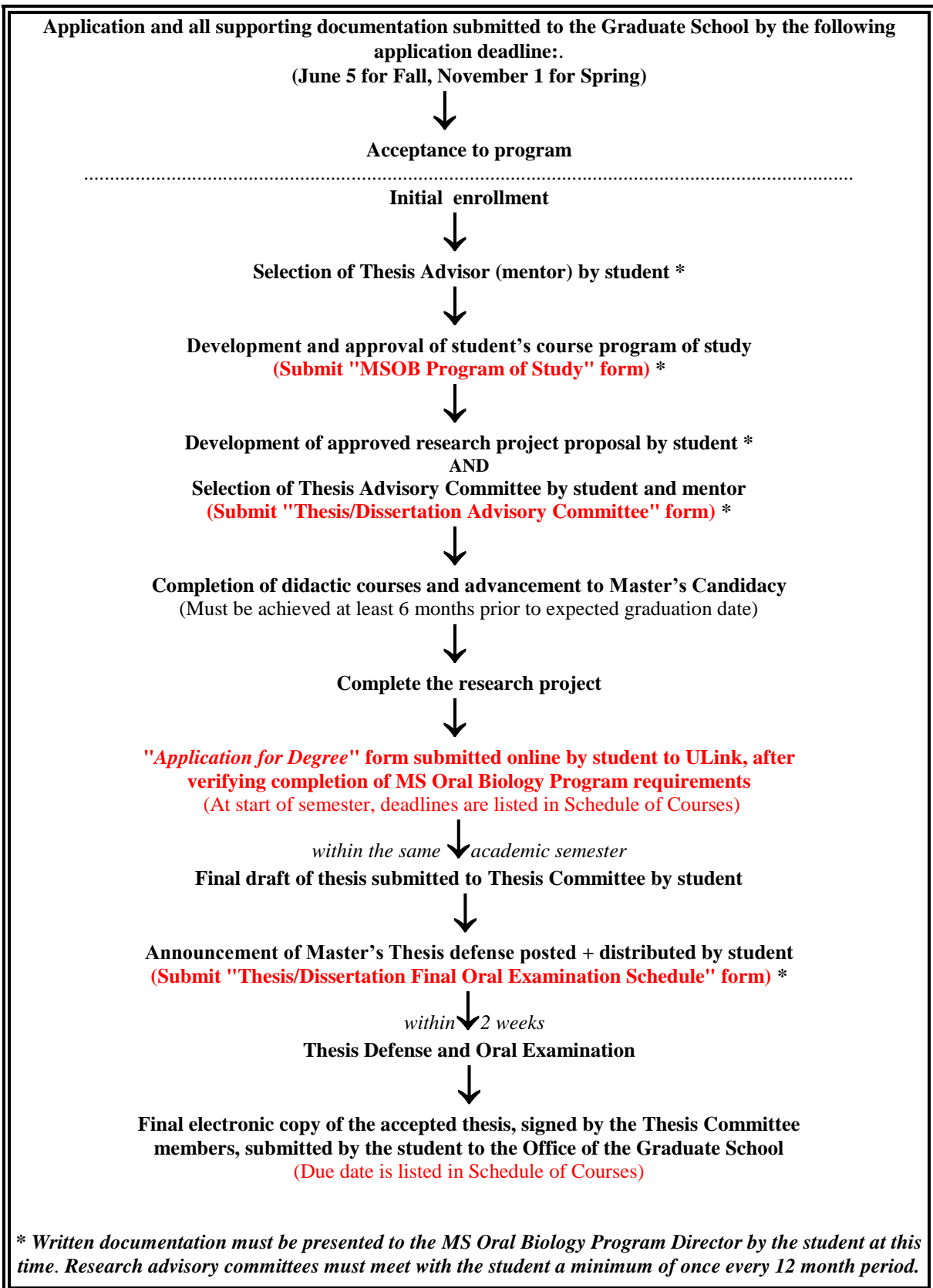
Probation

A student whose program GPA or overall graduate GPA falls below a *minimum* level of academic quality (3.0 on a 4-point scale) will be placed on probation until the student regains a 3.0 average or is dismissed. Students are ordinarily not permitted to continue on probation for more than one semester. Upon request of the student's academic department, the Graduate Dean may approve continuation beyond a single semester.

Thesis Requirements

Successful completion of the research project, thesis defense, and submission of copies to the appropriate agencies.

SCHEDULE FOR ADVANCEMENT in the MS in ORAL BIOLOGY PROGRAM



MS DEGREE in ORAL BIOLOGY: SPECIFIC COURSE REQUIREMENTS

30 semester hours are required. Normally, these are made up of the following:

15 semester hours of didactic course credits.

15 semester hours of Research and Thesis credits.

MSOB required (core) courses:

OBIO 501 Biomedical Data Analysis: Experimental Design and Statistics (Fall semester)	(3 semester hours)
OBIO 601 Introduction to Oral Biology Research (Fall Semester)	(2 semester hours)
OBIO 605 Oral Health Seminars (Continuous through Fall and Spring semesters)	(1 semester hour)
OBIO 606 Oral Biology Communication (Spring Semester, Prerequisite: OBIO601)	(1 semester hour)
OBIO 619 Research (minimum of 8 semester hours required)	(8-9 semester hours)
OBIO 620 Thesis (minimum of 6 semester hours required)	(6-7 semester hours)

Selective courses (offered within the School of Dentistry):

OBIO 600 Concepts in Oral Immunology (2 semester hours)
OBIO 604 Oral Microbiology (3 semester hours)
OBIO 610 Advanced Topics in Oral Biology (1-4 semester hours)
OBIO 611 Craniofacial Osteology (1-3 semester hours)
OBIO 612 Craniomaxillofacial Diagnostic Imaging (2-4 semester hours)
OBIO 613 Diagnosis and Treatment of Temporomandibular Disorders (1 semester hour)
OBIO 614 Advanced Oral Diagnosis / Oral Medicine (1 semester hour)
OBIO 615 Advanced Clinical Pharmacology (1 semester hour)
OBIO 616 Overview of Medical Genetics in Oro-facial Disease (1.5 semester hours)
OBIO 617 Advanced Oral Pathology (1 semester hour)
ASNB 670 Dental Gross Anatomy (6 semester hours)
ASNB 671 General and Oral Histology (5 semester hours)
ASNB 675 Advanced Head and Neck Anatomy (2 semester hours)

Additional approved courses:

In order to meet the educational needs of individual students, courses may be chosen from any 600-level courses offered by the Graduate School that are deemed to be relevant and applicable to the student's program of study and thesis research, but **must be approved by the student's thesis advisor and the MSOB Program Director**. For example, students with research topics in microbiology may select relevant coursework from the Department of Microbiology and Immunology; students with research topics in biochemistry may select relevant coursework from the Department of Biochemistry; etc.

Total semester hours required for MS degree: 30 semester hours

COURSE DESCRIPTIONS: ORAL BIOLOGY (0635-OBIO)

OBIO 501 Biomedical Data Analysis: Experimental Design and Statistics

Course Director: Dr. Bakeerathan Gunaratnam

b0guna01@louisville.edu

(3 semester hours, graded) Fall

This course is designed for graduate and professional students in health sciences who require a working knowledge of the statistical methods most often utilized in the biomedical sciences. The focus is upon the initial evaluation of scientific literature, the formulation of research protocols, and the interpretation of data. Offered in the Fall semester.

OBIO 600 Concepts in Oral Immunology

s0lian01@louisville.edu

Course Director: Dr. Shuang Liang

(2 semester hours, graded) Spring

Prerequisite: Consent of course director. A broad presentation of the contemporary concepts in the immunology of the oral cavity and beyond. Examples of areas covered include: pathogen recognition; innate immune cell development and function; lymphocyte development and function; immune diseases.

OBIO 601 Introduction to Oral Biology Research

Course Director: Dr. Douglas Darling

douglas.darling@louisville.edu

(2 semester hours, graded) Fall

Prerequisite: Acceptance to the degree program or consent of course director. Introduction to modern experimental design in biomedical research. Designed to acquaint the student with a broad spectrum of experimental design concepts which will help prepare for successful design of a research project. Major emphasis is placed on research design, research methodology, critical evaluation of basic research literature, ethical and regulatory concerns, and scientific writing.

OBIO 604 Oral Microbiology

Course Director: Dr. Donald Demuth

drdemu01@louisville.edu

(3 semester hours, graded) Spring

Prerequisite: OBIO 601 or professional school courses in microbiology and biochemistry. An in-depth study of the microbiota and host defense mechanisms with an emphasis on the ecology, nutrition, and biochemistry of the indigenous bacteria.

OBIO 605 Oral Health Seminars

Course Director: Dr. Shuang Liang

s0lian01@louisville.edu

(1 semester hour total for Fall and Spring semesters, Pass/Fail)

Prerequisite: Acceptance to the degree program or consent of course director.

OBIO 605 comprises biomedical research seminars describing basic and clinical research by internal and external faculty. Students will learn about the breadth of faculty biomedical research, providing context for their own research. The seminars are continuous through the fall and spring semesters. Students must enroll in both semesters to receive credit.

OBIO 606 Oral Biology Communication

Course Director: Dr. David Scott, Dr. Lisa Sandell and Dr. Lamont

dascot07@louisville.edu

(1 semester hour, graded) Spring

Prerequisite: OBIO 601. Student presentations of their thesis research topics, with an emphasis on scientific method and development of communication skills.

OBIO 610 Advanced Topics in Oral Biologydouglas.darling@louisville.edu**Course Director: Dr. Douglas Darling****(1-4 semester hours, graded)** Fall or Spring

Prerequisite: Consent of instructor based on request from faculty tutor. In depth study of a specified topic relevant to a student's research project, typically by tutorial discussions of recent publications with a selected Faculty. The role of this course is to encourage student access to relevant advanced expertise from faculty other than the student's mentor. Selected areas will be investigated in depth, using one or more of a variety of formats including lectures, seminars, tutorials, and research projects.

OBIO 611 Craniofacial Osteology**Course Director: Dr. Anibal Silveira**anibal.silveira@louisville.edu**(1-3 semester hours, pass/fail)** Fall

Prerequisite: OPGD 801 and OPGD 805 or equivalents. This course explores the hard tissue inter-relationships of the craniofacial complex. It includes the mechanical properties, origins and maturation of facial bones. The course complements the cephalometric course and is designed to link clinical applications to anatomic locations.

OBIO 612 Craniomaxillofacial Diagnostic Imaging**Course Director: Dr. William Scarfe**wscar01@louisville.edu**(2-4 semester hours, graded)**

Prerequisite: One of the following: (1) Admission to the MS Oral Biology program; (2) a DDS, DMD or MD degree or its foreign equivalent; (3) consent of the instructor. To teach principles of safety, quality assurance, selection criteria and interpretation for current diagnostic imaging modalities of interest to the health care provider treating the craniomaxillofacial complex.

OBIO 613 Diagnosis and Treatment of Temporomandibular Disorders**Course Director: Dr. Carmine Esposito**carmine.esposito@louisville.edu**(1 semester hour, pass/fail)** Fall

Prerequisite: One of the following: (1) a DDS or DMD degree, or its foreign equivalent; (2) consent of the instructor. Will present the basic concepts of temporomandibular disorders. Emphasis is on etiology, examination, recognition, diagnosis and treatment of facial pain/TMJ disorders and occlusal abnormalities.

OBIO 614 Advanced Oral Diagnosis / Oral Medicine**Course Director: Dr. Wendy Hupp**wendy.hupp@louisville.edu**(1 semester hour, pass/fail)** Fall

Prerequisite: One of the following: (1) Admission to the MS Oral Biology program; (2) a DDS, DMD or MD degree or its foreign equivalent; (3) consent of the instructor. This course will present to graduate students and/or dental professionals advanced topics on diagnostic methods and therapy relative to oral-maxillofacial and systemic diseases, as well as the inter-relationships between oral and systemic disease.

OBIO 615 Advanced Clinical Pharmacology**Course Director: Dr. Francis Firriolo**ffirr01@louisville.edu**(1 semester hour, pass/fail)** Spring

Prerequisite: One of the following: (1) Admission to the MS Oral Biology program; (2) a DDS, DMD or MD degree or its foreign equivalent; (3) consent of the instructor. To present advanced topics in clinical pharmacology with specific emphasis on antibiotics, analgesics, local anesthetics, anxiolytic, antifungal and antiviral drugs.

OBIO 616 Overview of Medical Genetics in Oro-facial Disease**Course Director: Dr. Joseph Hersh**jhhers01@louisville.edu**(1.5 semester hour, pass/fail)** Spring Alternate years

Prerequisite: One of the following: (1) Admission to the MS Oral Biology program; (2) a DDS, DMD or MD degree or its foreign equivalent; (3) consent of the instructor. This course will familiarize the student

with medical and genetic influences on development and growth, as well as dysmorphology and disease of the human body. Risk factors, probabilities and clinical outcomes are emphasized.

OBIO 617 Advanced Oral Pathology

Course Director: Dr. Mark Bernstein

mark.bernstein@louisville.edu

(1 semester hour, pass/fail) Summer

Prerequisite: One of the following: (1) Admission to the MS Oral Biology program; (2) a DDS, DMD or MD degree or its foreign equivalent; (3) consent of the instructor. An introduction to the clinical and radiographic manifestations of diseases of the oral cavity and the para-oral region. Also included will be the clinical differential diagnosis oral lesions and the etiology and histology of common oral lesions. Clinical evaluation and management of oral lesions will be discussed as well.

OBIO 619 Research

Course Director: Dr. Douglas Darling

douglas.darling@louisville.edu

(1-8 semester hours, pass/fail) Fall +/-or Spring

Prerequisite: Consent of instructor and acceptance to degree program in Oral Biology. This course allows graduate credit to be obtained for performing research.

OBIO 620 Thesis

Course Director: Dr. Douglas Darling

douglas.darling@louisville.edu

(1-8 semester hours, pass/fail) Fall +/-or Spring

Prerequisite: Consent of instructor and acceptance to degree program in Oral Biology. This course allows graduate credit to be obtained for writing and completing a thesis.

ASNB 670 / OBIO 670 Dental Gross Anatomy

Not currently scheduled: Please see the Program Director if you are interested in this course.

(6 semester hours)

ASNB 671 / OBIO 671 General and Oral Histology

Not currently scheduled: Please see the Program Director if you are interested in this course.

(5 semester hours)

ASNB 675 / OBIO 675 Advanced Head and Neck Anatomy

Course Director: Dr. Brian Davis

bmdavi01@louisville.edu

(2 semester hours) Spring

Prerequisites: BMSC-809 "Survey of Gross and Neuroanatomy" and BMSC-810 "Head & Neck Anatomy" or equivalent courses, at the discretion of the course director. The course consists of lectures on topics of the head and neck followed by dissection.

PROGRAM FEES

Details of applicable fees for all Graduate School programs are published by the *Bursar's Office* and are available at: <http://www.louisville.edu/vpf/bursar/student/tuition.htm>.



Accredited Graduate Educators at the School of Dentistry. January 28th, 2015

The following individuals have been approved as Graduate Education Faculty at the School of Dentistry according to the criteria published in the School's "Guidelines for Graduate Education":

Department of Microbiology

Pascale Alard**

Associate Professor

Jon Warawa*

Assistant Professor

Matthew Lawrenz*

Assistant Professor

James Graham

Associate Professor

Department of Orthodontics, Pediatric Dentistry and Special Care

Eric Bednar*

Clinical Assistant Professor

Sunita Chandiramani*

Clinical Associate Professor

Ann Greenwell*

Associate Professor

Anibal Silveira*

Professor

David Tasman*

Clinical Professor

Hector Martinez*

Assistant Professor

Liliana Rozo Gaeth

Associate Professor

Department of Surgical Hospital and Dentistry

Mark Bernstein

Professor

Cathy Binkley*

Associate Professor

William Scarfe*

Professor

John Sauk*

Dean and Professor

Brian Shumway*

Associate Professor

Robert Staat*

Professor

Bruno Azevedo*

Assistant Professor

Department of Oral Health and Rehabilitation

Ricardo Caicedo*

Associate Professor

Stephen Clark*

Professor

Carmine Esposito

Professor

Gerald T. Grant*

Professor

Henry Greenwell*

Professor

Bryan Harris*

Associate Professor

Margaret Hill*

Associate Professor

Zaf Khan*

Professor

Weishao Lin*

Associate Professor

Joseph Morelli*

Associate Professor

Jackie Singleton*

Associate Professor

John Virag*

Clinical Associate Professor

Jangching Chou

Assistant Professor

Department of General Dentistry and Oral Medicine

Gary Crim

Professor

John Firriolo*

Professor

Wendy Hupp

Associate Professor

Mike Mansfield

Assistant Professor

Lee Mayer

Associate Professor

Michael Metz*

Assistant Professor

Marcelo Durski

Assistant Professor

Sherry Babbage

Lecturer

Department of Oral Immunology and Infectious Diseases

Douglas Darling*

Professor

Donald Demuth*

Professor

Shuang Liang*

Assistant Professor

Richard Lamont*

Professor

Jan Potempa*

Professor

David Scott*

Professor

Huizhi Wang*

Assistant Professor

Department of Molecular, Cellular and Craniofacial Biology

Bob Greene*

Professor

Lisa Sandell*

Assistant Professor

Michele Pisano*

Professor

Department of Medicine

Silvia Uriarte

Associate Professor

*** Senior (M.Sc. and Ph.D. Mentoring) Faculty**

**** Non-School of Dentistry Faculty involved in student mentoring**