INTRODUCTION TO HSDM RESEARCH
The Office of Research supports a vibrant research program at HSDM. This includes support for basic science laboratories, clinical researchers, faculty, students, and postdoctoral fellows. The Office oversees all research-related training activities, courses and student research requirements; and administers the Biological Sciences in Dental Medicine PhD Program; the HSDM-Forsyth Research Academy DMSc Program; and the Basic and Clinical Science Seminars. The Office of Research provides guidance and will support students as they fulfill their research requirements. Please do not hesitate to reach out to any member of the office.

HSDM OFFICE RESEARCH

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## MMSc RESEARCH REQUIREMENT GRID

**COMPONENTS TO BE COMPLETED BY THE END OF YEAR 3:**
- Coursework
- Identify a Research Mentor/Design Project
- Select Thesis Advisory Committee (with assistance from the Office of Research)
- Thesis Proposal Approval (abstract and specific aims)
- Conduct Research
- Write Thesis
- Select a Thesis Defense Committee (with assistance from the Office of Research)
- Present at Student Research Day
- Defend Thesis
- Submit Thesis Electronically

<table>
<thead>
<tr>
<th>YEAR 1</th>
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<tr>
<td>Pass Fundamentals of Research Fall</td>
<td>Meeting #2 with Thesis Advisory Committee Fall</td>
<td>Meeting #3 Thesis Advisory Committee Fall</td>
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<tr>
<td>Select Thesis Advisory Committee and Submit for Approval Spring</td>
<td>Conduct Research Fall/Spring</td>
<td>Conduct Research Fall/Spring</td>
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<tr>
<td>Meet with Thesis Advisory Committee (meeting #1) Spring</td>
<td>Conduct Research Fall/Spring</td>
<td>Finalize Thesis Spring</td>
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<td>Submit Thesis Proposal for Approval* May 31 deadline</td>
<td>Conduct Research Fall/Spring</td>
<td>Thesis Defense** April 15 deadline</td>
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<td>Attend AGE Seminar Series Spring</td>
<td>Attend AGE Seminar Series Spring</td>
<td>AGE Seminar Series Present Spring</td>
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<tr>
<td>Attend Student Research Day Spring</td>
<td>Attend Student Research Day Spring</td>
<td>Present at Student Research Day*** April 15 deadline</td>
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*Research mentor must approve the proposal and attend all meetings of Thesis Advisory Committee
** Research mentor must approve the thesis and attend the Thesis Defense
*** Research mentor must approve the poster

Yellow Highlight = Academic sanctions applied for failure to meet deadline
FUNDAMENTALS OF RESEARCH COURSE

The Fundamentals of Research course (IDP602) will expose students to the basic and clinical research that is being conducted at HSDM. It will also provide the students the necessary tools for developing a testable scientific hypothesis, design and critique a scientific experiment as well as structure and write a scientific paper. The course will also teach students proper oral scientific presentation and communication. Students will be required to complete writing and group assignments, lesson quizzes, and prepare a presentation. This is a core course required for graduation. Students will fail the course if they miss any of the classes (unless approved by the Dean of Research). Course instructor is Dr. Hawazin Elani. Administrative contacts are the Director of Research Operations and Office of Research Program Coordinator.

The class will be held from 9 am to 12:00 pm in person in REB 109 unless otherwise directed to a Zoom link for any reason.

Dates and Topics TBA
**AGE RESEARCH SEMINAR SERIES’ COURSE**

The AGRE Research Seminar Series’ Course is held in the spring semester each year. Graduating DMSc students must present their research to their colleagues and faculty. Attendance is mandatory for all AGE students regardless if you are presenting or not. Course Instructor is Dr. Jennifer Gibbs and the Office of Research assists with administration. Students will be evaluated on:

- Abstract quality and formatting
- Overview of the project
- Specific aims and hypothesis
- Research design and methods
- Results, discussion and conclusions
- Responses to comments and questions
- Quality of the presentation

**IDENTIFY A RESEARCH MENTOR & DESIGN PROJECT**

The importance of mentor and project selection should not be overlooked; they are crucial to the quality of your experience and the successful completion of your requirements. Thus, you should expect to devote a considerable amount of time to this step, critically assessing the research environment offered by the mentor. Clearly, you should find the proposed project interesting and important. Beyond that, it is essential that the specific aims of the project be clearly delineated and feasible within the available timeframe. Your Research Advisor will guide you in all aspects of development of your thesis topic - as well as with the preparation and presentation of your thesis proposal, a prerequisite to beginning your thesis work. The most comprehensive database for Faculty mentors is on the Harvard Catalyst website: [http://connects.catalyst.harvard.edu/Profiles/SearchProfiles.aspx](http://connects.catalyst.harvard.edu/Profiles/SearchProfiles.aspx). Please contact the Office of Research and/or Dr. Gori (francesca_gori@hsdm.harvard.edu) for a list of past mentors and projects and/or if you need assistance identifying a mentor.

**OBTAIN IRB/IACUC APPROVAL**

HSDM students are subject to the same policies, guidelines and regulations as the Faculty of Medicine. It is therefore necessary for student research projects to be reviewed by the Office of Research Subject Protection. The Committee on Human Studies has an Internal Review Board and reviews all human subject-related research projects. The Standing Committee on Animals has an Institutional Animal Care and Use Committee and reviews all animal subject-related research projects. It is important to note, it is HSDM’s policy that students should not submit their own application, but instead, work with their Research Mentor under his/her application. Information on HMS/HSDM IRB and IACUC training, requirements, and approvals, and all relevant documents, can be found on the website of the HMS Office for Research Subject protection, [http://www.hms.harvard.edu/orsp/index.html](http://www.hms.harvard.edu/orsp/index.html). Students are required to obtain all appropriate HMS/HSDM institutional and site approvals (domestic or international) before commencing research activities. If you have a question about whether your research even needs an IRB review, contact them. They can be reached at orsp@hms.harvard.edu; 617-432-3071. Dr. Shigemi Nagai, Director of Clinical Research is an excellent resource for IRB questions and troubleshooting.

**THESIS PROCESS**

- Select Thesis Advisory Committee
- Thesis Proposal Examination
- Conduct Research
- Check-In Meetings with Thesis Advisory Committee
- Write Thesis
- Thesis Defense
- Thesis Submission
**THESIS ADVISORY COMMITTEE**

The Thesis Advisory Committee advises and counsels students on their projects. The Thesis Advisory Committee is comprised of two faculty members. One member must be a full-time faculty member of assistant professor rank or higher, and the other may be a part-time faculty member. Members of the committee should be well acquainted with the student’s area of research. The research mentor and program director will be non-voting members of the Committee and do not serve as official readers. The membership of the Thesis Advisory Committee must be approved by the Program Director, the Director for DMSc and MMSc Research and the Dean for Research before a meeting is convened. Students must obtain approval before any meeting is scheduled. The form for Thesis Advisory Committee may be found in the Research Guidebook. Please see the Director of Research Operations with questions and to obtain the Dean’s signature.

**THESIS PROPOSAL APPROVAL MEETING**

At this meeting, you must present a dissertation proposal (10-15 pages submitted to the Committee 7-10 days in advance of the meeting) describing the research topic and experimental plan, for evaluation and approval by the committee. The research plan must contain sufficient detail to permit the doctoral committee to provide detailed guidance in shaping the conceptualization and methodology of the plan. The committee must unanimously approve the dissertation topic and research plan before the student move forward with the research. Comments and changes suggested by the committee need to be addressed and presented in the following meetings.

**WRITE THESIS**

The format to be used for the thesis should be either that of a journal article or that of a formal thesis. The student should work closely with the mentor during the writing phases of the project. In either case, there are no page requirements or limitations. If you intend to use the journal article format, consult the requirements of the journal to which you intend to submit the manuscript. At your mentor’s discretion the format can be either one of the following: (1) A journal article of publishable quality, or (2) A formal thesis with the following thesis guidelines:

**TITLE PAGE:**

A Thesis Presented by  
Full Name, including Middle Name of Author with No Abbreviations  

  to  
The Faculty of Medicine  

In partial fulfillment of the requirements  

  for the degree of  
Doctor of Dental Medicine  

  Research Mentor: Name, Title  
Institutional affiliation if other than HSDM  

  Harvard School of Dental Medicine  
  Boston, Massachusetts  
  Month and Year of Submission  

**ABSTRACT:** In 500 words or less, summarize your project.

**INTRODUCTION:** Significance, Hypothesis, and Background. This section should review the pertinent literature and outline the major purpose of the research. Reference should be made to previous relevant studies in order to explain what has been done as well as to explain the purpose of this research. This section should include a succinct articulation of the hypothesis tested.

**INNOVATION AND APPROACH:** Experimental Design, Expected Outcomes, and Interpretation. Describe clearly and carefully the procedures and materials used; a reader should be able to repeat your exact methodology. This section should also include the overall research design and statistical methods.

**RESULTS AND DISCUSSION:** Report the results in a well-organized fashion with minimal subjective comment or reference to the literature. This section serves mainly to introduce tables and figures and to call attention to their significant parts.
CONCLUSION AND FUTURE DIRECTION: The data should be explained and interpreted with reference to the previous literature. The significance of the results may also be included. This is the section in which to emphasize subjective comment. In a thesis, the scope of the discussion extends beyond that of a journal article. For example, you may discuss why your first experiments failed, or how you arrived at the design for a particular protocol, or what you would do next if you were continuing the study.

REFERENCES: References must be double-spaced and numbered consecutively as they are cited. References first cited in a table or figure legend should be numbered so that they will be in sequence with references cited in the text at the point where the table or figure is first mentioned.

THESIS DEFENSE

THESIS DEFENSE COMMITTEE
At the point when students have completed their research, the Thesis Defense Committee will be formed. The Defense Committee should be similar in composition to the Thesis Advisory Committee; however, the membership of the Defense Committee must be different from that of the Advisory Committee. There may be carry over from the Thesis Advisory Committee to the Thesis Defense Committee however there must be one new reader. In addition, the student’s program director and research mentor cannot serve as official members of the Defense Committee. The membership of the Thesis Defense Committee must be approved by the Program Director, the Director for DMSc and MMSc Research and the Dean for Research before a meeting is convened. Students may be asked to obtain CV’s for individuals who are not affiliated with Harvard University or are new to the AGE Research process. Students must obtain approval before any meeting is scheduled.

THESIS DEFENSE
When the Thesis Advisory Committee determines that that the students have completed their research project, the student must generate a research thesis. Guidelines for the thesis will be provided by the Office for Research. The student should schedule a meeting of the Thesis Defense Committee, as the thesis nears completion. At least 2 weeks prior to the meeting, the thesis must be distributed to members of the Committee. In addition, the Office of Research must be notified, in writing, as to the date, time, and location of the Thesis Defense as well as the membership of the Thesis Defense Committee. Samples of theses may be obtained from the Office of Research. At the conclusion of the defense, the candidate is excused from the room while the Committee votes on the acceptability of the thesis.

THESIS SUBMISSION
If the thesis is acceptable, specific changes in the written document are often recommended by Committee members. These must be incorporated into a revised version of the thesis, which is then circulated among Committee members for final approval. If the thesis is unacceptable, the student is expected to carry out additional experiments, make recommended changes, submit a revised thesis, and reconvene the Thesis Defense Committee at a later date. Once you have successfully defended your thesis, please provide the Office of Research with a copy of the signature sheet. You will then submit your thesis online at http://etds.lib.harvard.edu, it will automatically generate one bound copy for Countway Library’s Archive Department. If you would like additional copies (i.e. your program director, yourself, your family, etc.), you must pay for this service and suggest using: http://thesesondemand.com.
HSDM STUDENT RESEARCH DAY

Student Research Day will be held on April 11, 2023. The primary focus of this all-day event is for graduating DMD, MMSc, DMSc, and PhD students to showcase their research to faculty as well as fellow students. All graduating MMSc students are required to present an electronic poster and must submit an abstract (500 words maximum) of their research to the Office of Research for inclusion in an abstract book. The submission of the poster must be approved by the Research Mentor and the Program Director. A sample may be found at the end of this Guidebook. The Office of Research awards “best poster” certificates for each student group. **E-Poster guidelines and a sample will be circulated in February 2023.** Faculty and Postdoctoral Fellow reviewers look at six criteria when evaluating posters:

- Student’s ability to describe the work and its significance;
- Organization and clarity of the poster presentation;
- Introduction and formulation of hypothesis and scientific method;
- Quality and extent of work done by the student;
- Student’s overall understanding of the project; and
- Overall evaluation of the poster and presentation.
ADDITIONAL RESEARCH INFORMATION & FORMS

ACADEMIC, PROFESSIONAL, AND SCIENTIFIC CONDUCT:

PREPARATION OF PAPERS AND OTHER WORK
All homework assignments, projects, lab reports, papers and examinations submitted for a course are expected to be the student’s own work. Students should always take great care to distinguish their own ideas and knowledge from information derived from other sources. The term "sources" includes not only published or electronic primary and secondary material, but also information and opinions gained directly from other people. It is each student’s responsibility to understand the expectations of academic integrity, proper forms of citation, and submission of one’s own work. In addition, collaboration in the completion of assignments is prohibited unless explicitly permitted by the instructor, in which case it must be acknowledged.

AUTHORSHIP GUIDELINES
Authorship is an explicit way of assigning responsibility and giving credit for intellectual work. The two are linked. Authorship practices should be judged by how honestly they reflect actual contributions to the final product. Authorship is important to the reputation, academic promotion, and grant support of the individuals involved, as well as to the strength and reputation of their institution. The Faculty Council of Harvard Medical School has endorsed the following statement. Although authorship practices differ from one setting to another, and individual situations often require judgment, variation in practices should be within these basic guidelines.

- Everyone who is listed as an author should have made a substantial, direct, intellectual contribution to the work. For example (in the case of a research report) they should have contributed to the conception, design, analysis and/or interpretation of data. Honorary or guest authorship is not acceptable. Acquisition of funding and provision of technical services, patients, or materials, while they may be essential to the work, are not in themselves sufficient contributions to justify authorship.
- Everyone who has made substantial intellectual contributions to the work should be an author. Everyone who has made other substantial contributions should be acknowledged.
- When research is done by teams whose members are highly specialized, individual’s contributions and responsibility may be limited to specific aspects of the work.
- All authors should participate in teams whose members are highly specialized, individual's contributions and responsibility may be limited to specific aspects of the work.
- One author should take primary responsibility for the work as a whole even if he or she does not have an in-depth understanding of every part of the work.

RESEARCH RESOURCES:

CORE RESEARCH FACILITIES
The Harvard Catalyst core facilities database is powered by the eagle-i network and is searchable by category, institution, or keyword https://cores.catalyst.harvard.edu. Please contact Jim McBride, Director of Core Labs at HSDM, if you are interested in learning more about our facilities or have questions regarding facilities, equipment, or training. It is important to note that you must be trained to use equipment and access laboratories at HSDM.

SUBMITTING A GRANT APPLICATION
If you do plan on submitting a grant application, please work with the Office of Administration and Finance. They must be notified prior to the submission deadline. All grant applications must be approved through the Office of Administration and Finance as well as your Research Mentor prior to submission. This pertains to all funding (including but not limited to government awards, foundation awards, dental society awards) even if they do not require institutional approval. If you have any questions about this policy, please speak with the Associate Director of Grants Administration.

POSTER PRINTING
For poster printing, the HSDM Office of Research will pay for the printing of posters on standard-industry poster paper. The HSDM Office of Research has an account at www.phdposters.com. From this link, click orange tab “Start you order now” then under the three orange tabs, you will see a link "or use a PhD Posters group account,” click here and then log in HSDM; password HSDMResearch. You are responsible for picking up your poster on Longwood Avenue. The Office of Research will not pay for special material, rushed orders or shipping.

SCIENCE TALKS AT HSDM
It is required that you attend the Science Talks at HSDM. These are bi-monthly talks by invited faculty who are experts in their field of research (titles will be announced closer to the date). Science Talks at HSDM will be held from 12pm to 1pm in the REB Auditorium (or via Zoom as mandated).
TRAVEL FOR ANNUAL CONFERENCES
Should you travel off-campus for presenting any posters at a conference, you may be eligible for up to $500 in reimbursement per fiscal year (July 1-June 30). This is a reimbursement which will be awarded upon return of your attendance of any conference. In order to apply, you must complete the travel ... form included here prior to your travel and submit it to the Office of Research for approval. Once approved, submit all receipts/confirmations (electronic or hardcopy is accepted) to the Office of Research Program Coordinator.

The Office of Research only reimburses for transportation (airfare/train/car rental/taxi/ride share service), conference fees, or lodging (hotels/motels/Airbnb). All purchases must be made by you and in your name. If you plan on sharing a cost with another person you must have your own receipt reflecting your half of the payment.
Complete all fillable fields below:

Name of Student
Project Title
Research Mentor

PROPOSED THESIS ADVISORY COMMITTEE MEMBERS
The Thesis Advisory Committee advises and counsels students on their projects. The Thesis Advisory Committee is comprised of two faculty members. One member must be a full-time faculty member of assistant professor rank or higher, and the other may be a part-time faculty member. Members of the committee should be well acquainted with the student’s area of research. The research mentor and program director will be non-voting members of the Committee and do not serve as official readers. The research mentor and program director will be non-voting members of the Committee and do not serve as official readers. The

PLEASE PRINT THE NAMES AND TITLES OF THE MEMBERS OF YOUR THESIS ADVISORY COMMITTEE

Please indicate who the chair of the committee is with an asterisk (*)

Committee Member 1 Name and Academic Title
Committee Member 2 Name and Academic Title

PROGRAM DIRECTOR SIGNATURE __________________________ DATE __________

DIRECTOR FOR DMSc and MMSc RESEARCH SIGNATURE __________________________ DATE __________

ASSOCIATE DEAN FOR RESEARCH SIGNATURE __________________________ DATE __________
Complete all fillable fields below:

Name of Student
Project Title
Research Mentor
Meeting Date

PLEASE PRINT THE NAMES AND TITLES OF THE MEMBERS OF YOUR THESIS ADVISORY COMMITTEE

Please indicate who the chair of the committee is with an asterisk (*)

Committee Member 1 Name and Academic Title
Committee Member 2 Name and Academic Title

☐ APPROVE THESIS PROPOSAL

☐ APPROVE THESIS PROPOSAL WITH THE FOLLOWING RECOMMENDATIONS

☐ DISAPPROVE THESIS PROPOSAL FOR THE FOLLOWING REASONS
MMSc Thesis Defense Form

We, the undersigned, have read and approved the thesis of Dr. (insert student’s name) submitted in partial fulfillment of requirements for the degree of a Doctorate of Medical Sciences at Harvard School of Dental Medicine.

Dr. (insert student’s name)  
(insert thesis title here)

________________________________________
Dr. (insert Defense Committee member’s name)

________________________________________
Dr. (insert Defense Committee member’s name)

Insert date
Travel Reimbursement Form

The Office of Research considers funding requests from students who are traveling to present their research. Students may receive up to $500 per fiscal year (July 1-June 30) in research travel funding towards accommodations, transportation and registration fees. Reimbursements are submitted upon return of travel. Receipts or proof of payment is required and must be in your name. Please return completed application materials to The Office of Research.

Complete all fillable fields below:

**Name of Student**

**Program**

**HUID #**

**Research Mentor**

**Dates of Travel**

**Name of Conference or Meeting**

**Have you ever received a reimbursement from Harvard?**  YES (WHAT YEAR?)  NO

**Are you a U.S. Citizen?**  YES  NO

**Current Mailing Address**

**Permanent Mailing Address**