



Intro to Biomed Informatics

BMI-510

Winter 2020 3 Credits 01/06/2020 to 03/20/2020 Modified 11/01/2019

Description

This course provides a broad survey introduction to biomedical and health informatics, the field concerned with the acquisition, use, and storage of information in healthcare, biomedical research, and public health. Students focus on the underlying themes of biomedical and health informatics, including the proper use of information technology in health-related settings. The course provides a broad understanding of the field from the vantage point of those who implement, lead, and develop IT solutions for improving health, healthcare, public health, and biomedical research. It provides up-to-date details on current events in the field, including electronic health records, data standards and interoperability, clinical decision support, healthcare data analytics, population health, patient engagement, and telemedicine. It also describes and sets the context for new technologies, such as SMART on FHIR, wearables, and blockchain.

Prerequisite: None

Offering: Online: Fall, Winter, Spring, Summer

This syllabus is for BMI 510 OL W20, BMI 610 OL W20

Contact Information

The instructor for the course is [William Hersh, MD](#). The best way to reach him is via email (hersh@ohsu.edu). Dr. Hersh does not keep regular office hours but phone calls or meetings can be arranged with him. He also maintains a blog, [Informatics Professor](#).

WHEN PROBLEMS ARISE

It is critical to contact the appropriate person when problems arise:

- For basic Sakai problems and course issues (e.g., cannot log in, after-hours technical assistance, Course Materials or Forum not available/accessible during regular business hours/days), contact the Sakai Help Desk: Toll-Free - (877) 972-5249; email - sakai@ohsu.edu. Sakai help is available M-Th from 8am to 7 pm, Fridays 8-5, and Sundays from Noon to 5pm.
- For questions about course content (e.g., do not understand a topic or disagree with homework quiz answer), contact the Teaching Assistant, who will be announced at the beginning of the course: go to the Email Tab after logging into the course and choose "Associate" role to send message to the TA or post a question in the Forums.

When appropriate, all issues will be elevated to Dr. Hersh. While Dr. Hersh does not maintain scheduled office hours, he is readily accessible via email and will respond within 24-48 hours. Appointments to discuss course matters by phone or in person can be arranged via email.

Meeting Times

Course units are released every Wednesday and all materials (including quizzes) are due one week later on the following Wednesday. The due date in Sakai is the set due date.

Materials

The course is taught via distance learning. Teaching modalities include:

- Access to the entire course via the [OHSU Sakai system](#)
- Voice-over-PowerPoint lectures using the Flash browser plug-in
- Handouts of PowerPoint slides and cited references
- Reading assignments in the form of PDFs
- On-line multiple-choice homework assignments
- On-line discussion in the Sakai forums

REQUIRED READINGS

The course has no required textbook. Students are provided assigned readings from 1-3 key articles or reports for each unit. Students are also provided comprehensive lists of references for topics covered in the lectures.

There is an optional textbook (co-edited by the course instructor) that students may want to consider: Hoyt RE, Hersh WR, Eds. (2018). *Health Informatics: Practical Guide, Seventh Edition*, which is available from Lulu.com in [eBook](#) and [paper](#) versions. The reading assignments from the book are optional, and no material will appear on the homework quizzes or final exam that is not also covered in the class. But some students prefer to also read a textbook when learning. The appropriate chapter readings for each unit in the course are as follows:

Unit	Topic	Textbook Chapter(s)
1	Overview of Field and Problems Motivating It	1
2	Biomedical Computing	3
3	Electronic and Personal Health Records (EHR, PHR)	2, 4
4	Standards and Interoperability	5
5	Advancing Care With the EHR	6, 8, 9
6	Data Science and Analytics	7, 14
7	EHR Implementation, Security, and Evaluation	4, 10
8	Information Retrieval (Search)	15
9	Research Informatics	18, 20
10	Other Areas of Informatics	12, 13, 16, 17, 19

Course Goals

Course Competencies, Outcomes, and Objectives

✓ Assessment

COURSE INTERACTION

The course aims to provide a great deal of interaction among the faculty, students, and teaching assistants. On-line discussion begins for each unit with the instructor posing 2-3 questions per unit. Students are also encouraged to post questions or comments about any topic in the course or the field in the general discussion forum at any time. The instructor aims to guide and fill in details of the discussion but not dominate it.

COURSE PROJECT

The course project is a term paper. The goal of the term paper is for you to explore a topic of interest beyond what we cover in class. Therefore, you should pick a topic that interests you, search for information about it in reputable sources, and write it up in a coherent and readable manner. You must not simply re-hash material we cover in class.

One of the big challenges students face with this assignment is an appropriate level of focus. You may need to do some searching to determine what that level of focus is. You want a topic that you can reasonably describe, not necessarily in exhaustive detail, in 10-15 pages. If you have questions about appropriate level of focus, or any other questions, do not hesitate to email the instructor. He and you can even talk by phone if necessary.

Some logistical details about the paper:

- It should be 10-15 pages double-spaced, including tables and figures but not title page or references, with one-inch margins.
- It should have a title page, which is not included in the paper page count.
- References can be in any format (e.g., APA, Vancouver) as long as they are consistent and have enough information for them to be located, and are not include in the paper page count.
- The text should be your own words and not copied and pasted from other writings. (An on-line plagiarism-checking tool is used.)
- It should be typed into a Microsoft Word document. Other word processor formats or PDF are not acceptable.
- The file name should begin with your last name, e.g., Hersh-BMI510.docx, and be uploaded to the Submission site on Sakai (do not email it).

The rubric for grading the paper is as follows. Grading for the paper is a letter grade based on all of the following criteria (percentage for each criterion):

- Title that briefly describes what paper is about (5%)
- Introductory 1-2 paragraphs that describe what will be covered in the paper (15%)
 - Provide clear and complete definition of the problem or issues of interest
- Body of paper that provides (35%)
 - Literature and perspectives relevant to background of the clinical, system, or organizational problem, and/or ethical, or policy issue
 - Discussion of issues and implications reflecting integration and analysis
 - Potential solutions/approaches/strategies/services/programs
 - Approaches and solutions grounded in the scientific literature or credible technical reports
- Concluding 1-2 paragraphs that review what was covered and provide any conclusions (15%)
- All writing in concise and grammatically correct English (20%)
 - Body of paper appropriately segmented by headings covering the main aspects of the paper
 - Text should be readable narrative and not a series of lists or bulleted items
 - All facts should be appropriately cited with the full reference in the Reference section at the end of the paper
- References can be in any format (e.g., APA, Vancouver) as long as they are consistent and have enough information for them to

be located (which the instructor occasionally does, since you may pique his interest!) (10%)

FINAL EXAMINATION

BMI 510/610 requires a final exam. The exam is open-book, so students may access books, notes, lectures, and the Internet but may not contact or communicate with other humans. The exam consists of about 8 general questions, each with sub-questions, for a total of about 33 items to answer. The items require a short answer, typically less than a sentence. The coverage of items is similar to what is covered in the weekly quizzes, with the aim of applying the information that has been learned. The exam is administered via Sakai during a one-week period the day that Unit 10 is posted.

It is OHSU policy that any exam offered online and worth more than 10% of the final course grade must be virtually proctored. In this course, we will be using the services of Examity, a remote proctoring services company. You will be required to schedule your exam three (3) weeks ahead of time. There is no cost to the student. More information will be provided to you regarding setup, scheduling, and requirements in the Course Materials.

Policy number: 02-70-050 (<http://www.ohsu.edu/xd/education/student-services/academic-programs-and-assessment/academic-policy/approved-policies/upload/Online-Exam-Proctoring-02-70-050.pdf>)

Criteria

Student grading is based on the following:

- On-line multiple-choice homework assignments - 30%
- Term paper - 30%
- Final examination - 30%
- Class participation in discussion forums - 10%

The course is graded on a curve, but usually adheres to the following distribution:

A	90-100
A-	85-89
B+	80-84
B	75-79
B-	70-74
C+	65-69
C	60-64
D/F	<60

Course & Instructor Evaluations

Schedule

Unit	Topic	Date Posted
1	Overview of Field and Problems Motivating It	1/8
2	Biomedical Computing	1/15
3	Electronic and Personal Health Records	1/22
4	Standards and Interoperability	1/29
5	Advancing Care With the EHR	2/5
6	Data Science and Analytics	2/12
7	EHR Implementation, Security, and Evaluation	2/19
8	Information Retrieval (Search)	2/26
9	Research Informatics	3/4
10	Other Areas of Informatics (Term paper due)	3/11

DETAILED COURSE OUTLINE

Overview of Field and Problems Motivating It

- 1.1 What is Biomedical and Health Informatics?
- 1.2 A Discipline Whose Time Has Come
- 1.3 Problems in Healthcare Motivating Biomedical and Health Informatics
- 1.4 Who Does Biomedical and Health Informatics?
- 1.5 Seminal Documents and Reports
- 1.6 Resources for Field – Organizations, Information, Education

Biomedical Computing

- 2.1 Types of Computers
- 2.2 Data Storage in Computers
- 2.3 Computer Hardware and Software
- 2.4 Computer Networks
- 2.5 Software Engineering

Electronic and Personal Health Records (EHR, PHR)

3.1 Clinical Data

3.2 History and Perspective of the Health (Medical) Record

3.3 Definitions and Key Attributes of the EHR

3.4 Benefits and Challenges of the EHR

3.5 EHR Examples

3.6 Personal Health Records

Standards and Interoperability

4.1 Standards and Interoperability: Basic Concepts

4.2 Identifier and Transaction Standards

4.3 Message Exchange Standards

4.4 Terminology Standards

4.5 SMART on FHIR

Advancing Care With the EHR

5.1 Patient Safety and Medical Errors

5.2 Clinical Decision Support (CDS)

5.3 Healthcare Quality Measurement and Improvement

5.4 Computerized Provider Order Entry (CPOE)

5.5 Health Information Exchange (HIE)

5.6 HITECH and Meaningful Use

Data Science and Analytics

6.1 Data Science and Data Analytics

6.2 Machine Learning and Artificial Intelligence

6.3 Natural Language Processing

6.4 Evidence-Based Medicine

6.5 Clinical Practice Guidelines

EHR Implementation, Security, and Evaluation

7.1 Clinical Workflow Analysis and Redesign

7.2 EHR System Selection and Implementation

7.3 Telemedicine and Telehealth

7.4 Privacy and Security

7.5 Evaluation of the EHR

Information Retrieval (Search)

8.1 Information Retrieval

8.2 Knowledge-based Information

8.3 Content

8.4 Indexing

8.5 Retrieval

8.6 Research: Evaluation and Future Directions

Research Informatics

9.1 Clinical Research Informatics

9.2 Overview of Basic Molecular Biology

9.3 Translational Bioinformatics

9.4 From Clinical Genetics and Genomics to Precision Medicine

9.5 Genomics Data in the EHR and Other Information Systems

Other Areas of Informatics

10.1 Imaging Informatics

10.2 Nursing Informatics

10.3 Public Health Informatics

10.4 Consumer Health Informatics

10.5 Population Health

* Course Policies and Resources

School Policies and Resources

Graduate Studies Guidelines:

Students are responsible for following all OHSU School of Medicine, Graduate Studies, and program/department guidelines & policies. For more information, please [visit here \(https://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm\)](https://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm). For program/department guidelines & policies, please inquiry with the program/department director and/or coordinator.

School of Medicine Conduct Policy (housed under the graduate studies guidelines section)

Students are responsible for their own academic work. Students are expected to have read and practice principles of academic honesty, as presented in the [Graduate Studies Student Handbook](http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm). (<http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/admin-resources.cfm>)

The School of Medicine reserves the privilege of retaining only those students who, in the judgement of the faculty, satisfy the requirements of scholarship and clinical performance necessary to maintain the highest standards. The Student Handbook has information about academic standards and probation and dismissal policies.

Grading Criteria, Academic Standards, & Release of Final Grades:

Graduate Studies in the OHSU School of Medicine is committed to providing grades to students in a timely manner. Course instructors will provide students with information in writing at the beginning of each course that describes the grading policies and procedures including but not limited to evaluation criteria, expected time needed to grade individual student examinations and type of feedback they will provide.

All coursework applied towards degree requirements must meet the minimum cumulative grade point average of at least 3.0.

Refer to the School of Medicine Graduate Studies Forms & Policies for withdraw, incomplete, and in-progress grading standards. Final course grades will be posted with the OHSU Registrar the Monday following the last day of the term. On those occasions when a grade has not been submitted by the deadline, the following procedure shall be followed:

1. The Department*/Program** Coordinator will immediately contact the Instructor requesting the missing grade, with a copy to the Program Director and Registrar.
2. If the grade is still overdue by the end of next week, the Department*/Program** Coordinator will email the Department Chair directly, with a copy to the Instructor and Program Director requesting resolution of the missing grade.
3. If, after an additional week the grade is still outstanding, the student or Department*/Program** Coordinator may petition the Office of Graduate Studies for final resolution.

*For courses that are run by a specific department.

**For the conjoined courses (course number is preceded by CON) that are run by Graduate Studies.

Graduate Studies Inclement Weather Procedures

Inclement weather procedures can be [found here](http://www.ohsu.edu/xd/about/visiting/weather/index.cfm) (<http://www.ohsu.edu/xd/about/visiting/weather/index.cfm>). In the case of inclement weather, the faculty member will email or place a voice-mail greeting on her/his office telephone number by 6:00am on the day of the clinical or class to give instructions to students about the class schedule.

Graduate Studies Copyright Information

Every reasonable effort has been made to protect the copyright requirements of materials used in this course. Class participants are warned not to copy, audio, or videotape in violation of copyright laws. Journal articles will be kept on reserve at the library or online for student access. Copyright law does allow for making one personal copy of each article from the original article. This limit also applies to electronic sources.

DMICE Communication Policy

1. If the syllabus directs the student to contact the TA before contacting the instructor, the student should do so. Otherwise, the student should contact the instructor and allow 2 business days (not including weekends) for a response.
2. If the student does not receive a response from the instructor within 2 business days, s/he should contact the TA (if there is one). When contacting the TA s/he should cc the instructor and Diane Doctor at doctord@ohsu.edu.
3. If a student does not receive a response from the TA within 1 business day (not including weekends), s/he should contact Diane Doctor at doctord@ohsu.edu and cc the instructor and the TA.
4. If Diane does not reply within 1 business day (not including weekends), the student should contact Andrea Ilg at ilgan@ohsu.edu.
5. Students having difficulties with Sakai should contact the Sakai Help Desk at sakai@ohsu.edu or at (877) 972-5249. Sakai help is available M-F from 8am to 10-pm and weekends from Noon to 5pm. Do not contact the instructor.

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[Policy number: 02-70-050 \(\(http%3A/www.ohsu.edu/xd/education/student-services/academic-programs-and-assessment/academic-policy/approved-policies/upload/Online-Exam-Proctoring-02-70-050.pdf\)\)](http://www.ohsu.edu/xd/education/student-services/academic-programs-and-assessment/academic-policy/approved-policies/upload/Online-Exam-Proctoring-02-70-050.pdf)

Turn It In

In an effort to uphold the principles and practice of academic honesty, faculty members at OHSU may use originality checking systems such as Turnitin to compare a student's submitted work against multiple sources. To protect student privacy in this process, it will be necessary to remove all personal information, i.e. student name, email address, student u-number, or any other personal information, from documents BEFORE submission.

Sakai and TLC Help Desk

You will learn through the Sakai learning management software at <http://sakai.ohsu.edu>. () The online component includes reading material, lectures (including streaming presentations and handouts), project material, learning assignments, and online discussions. If you have any technical questions or if you need help logging in, please contact the Sakai Help Desk, which is open Mon – Fri, 8 am – 9 pm and weekends 12 pm – 5 pm, Pacific Time.

Contact Information:

(Toll-free) 877-972-5249

(Web) <http://atech.ohsu.edu/help>

(Email) sakai@ohsu.edu (<mailto:sakai@ohsu.edu>)

Online Etiquette

Please use professional etiquette when communicating with peers and the instructor. This means avoiding aggressive or offensive language, showing respect for others' opinions and positions, and conducting yourself as if you were face to face with them. Please pay special attention to etiquette in class forums and when using email. If you notice someone violating this policy, please make the instructor and TA aware of the problem.

School Competencies

OHSU Competencies

List of OHSU Graduation Core Competencies

1. Professional Knowledge and Skills

2. Reasoning and Judgement
3. Evidence-Based Practice and Research
4. Lifelong Learning
5. Communication
6. Professionalism and Ethics
7. Teamwork
8. Safety and Quality Improvement
9. Systems
10. Patient/Client-Centered Care (Clinical)

To access a descriptive list of OHSU Graduation Core Competencies: [OHSU Graduation Core Competencies \(https://www.ohsu.edu/sites/default/files/2019-05/OHSU-Graduation-Core-Competencies.pdf\)](https://www.ohsu.edu/sites/default/files/2019-05/OHSU-Graduation-Core-Competencies.pdf)

Institutional Policies and Resources

Statement Regarding Students with Disabilities:

OHSU is committed to inclusive and accessible learning environments in compliance with federal and state law. If you have a disability or think you may have a disability (mental health, attention-related, learning, vision, hearing, physical or health impacts) contact the Office for Student Access at (503) 494-0082 or [OHSU Student Access \(mailto:studentaccess@ohsu.edu\)](mailto:studentaccess@ohsu.edu) to have a confidential conversation about academic accommodations. Information is also available at [Student Access Website \(http://www.ohsu.edu/student-access\)](http://www.ohsu.edu/student-access). Because accommodations may take time to implement and cannot be applied retroactively, it is important to have this discussion as soon as possible.

Portland State students also have similar resources available via the PSU Disability Resource Center (website <http://www.pdx.edu/drc> (<http://www.pdx.edu/drc>)). Please contact the DRC at tel. (503) 725-4150 or email at drc@pdx.edu (<mailto:drc@pdx.edu>).

Student Evaluation of Courses:

Course evaluation results are extremely important and used to help improve courses and the learning experience of future students. Responses will always remain anonymous and will only be available to instructors after grades have been posted. The results of scaled questions and comments go to both the instructor and their unit head/supervisor. Refer to Student Evaluation of Courses and Instructional Effectiveness, *[Policy No. 02-50-035 \(https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-2-student-affairs/ohsu-policy-02-50-035.cfm\)](https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-2-student-affairs/ohsu-policy-02-50-035.cfm).

*To access the OHSU Student Evaluation of Courses and Instructional Effectiveness Policy, you must log into the [OHSU O2 website \(https://o2.ohsu.edu/\)](https://o2.ohsu.edu/).

Copyright Information:

Copyright laws and fair use policies protect the rights of those who have produced the material. The copy in this course has been provided for private study, scholarship, or research. Other uses may require permission from the copyright holder. The user of this work is responsible for adhering to copyright law of the U.S. (Title 17, U.S. Code). To help you familiarize yourself with copyright and fair use policies, the University encourages you to visit its [Copyright Web Page \(https://www.ohsu.edu/xd/education/library/services/copyright/\)](https://www.ohsu.edu/xd/education/library/services/copyright/).

Sakai course web sites contain material protected by copyrights held by the instructor, other individuals or institutions. Such material is used for educational purposes in accord with copyright law and/or with permission given by the owners of the original material. You may download one copy of the materials on any single computer for non-commercial, personal, or educational purposes only, provided that you (1) do not modify it, (2) use it only for the duration of this course, and (3) include both this notice and any copyright notice originally included with the material. Beyond this use, no material from the course web site may be copied, reproduced, re-published, uploaded, posted, transmitted, or distributed in any way without the permission of the original copyright holder. The instructor assumes no responsibility for individuals who improperly use copyrighted material placed on the web site.

Syllabi Changes and Retention:

Syllabi are considered to be a learning agreement between students and the faculty of record. Information contained in syllabi, other than the minimum requirements, may be subject to change as deemed appropriate by the faculty of record in concurrence with the academic program and the Office of the Provost. Refer to the [*Course Syllabi Policy, 02-50-050](https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-2-student-affairs/ohsu-policy-02-50-050). (<https://o2.ohsu.edu/policies-and-compliance/ohsu-policy-manual/chapter-2-student-affairs/ohsu-policy-02-50-050.cfm>)

*To access the OHSU Course Syllabus Policy, you must log into the [OHSU O2 website \(https://o2.ohsu.edu/\)](https://o2.ohsu.edu/).

Commitment to Diversity & Inclusion:

OHSU is committed to creating and fostering a learning and working environment based on open communication and mutual respect. If you encounter sexual harassment, sexual misconduct, sexual assault, or discrimination based on race, color, religion, age, national origin, veteran's status, ancestry, sex, marital status, pregnancy or parenting status, sexual orientation, gender identity, disability or any other protected status please contact the Affirmative Action and Equal Opportunity Department at 503-494-5148 or [aaeo@ohsu.edu \(mailto:aaeo@ohsu.edu\)](mailto:aaeo@ohsu.edu). Inquiries about Title IX compliance or sex/gender discrimination and harassment may be directed to the OHSU Title IX Coordinator at 503-494-0258 or [titleix@ohsu.edu. \(mailto:titleix@ohsu.edu.\)](mailto:titleix@ohsu.edu)

Modified Operations, Policy 01-40-010:

Portland Campus: Marquam Hill and South Waterfront

Students should review O2 or call [OHSU's weather alert \(https://www.ohsu.edu/xd/about/visiting/weather/\)](https://www.ohsu.edu/xd/about/visiting/weather/) line at 503-494-9021 for the most up-to-date information on OHSU-wide modified operations which include but are not limited to delays or closures for inclement weather.

If your home institution is not on the Portland campus (Marquam Hill or South Waterfront, contact your home institution for more information.

OHSU Resources Available to Students*:

Registrar's Office

Mackenzie Hall, Rm. 1120

503-494-7800; [Email the Registrar \(mailto:regohsu@ohsu.edu\)](mailto:regohsu@ohsu.edu)

Student Registration Information:

[To Register for Classes \(http://www.ohsu.edu/xd/education/student-services/registrar/registration-information/index.cfm\)](http://www.ohsu.edu/xd/education/student-services/registrar/registration-information/index.cfm)

OHSU ITG Help Desk

Regular staff hours are 6 a.m. to 6 p.m., Monday through Friday, but phones are answered seven days a week, 24 hours a day. Call 503 494-2222.

Teaching and Learning Center

Academic Support Counseling and Sakai Course Management System, please contact the TLC Help Desk at 877-972-5249 or email [TLC Help Desk \(mailto:sakai@ohsu.edu\)](mailto:tlc_help_desk@ohsu.edu)

Concourse Syllabus Management

For help with accessing your Concourse Syllabus: Please contact the Sakai help Desk for all other Concourse inquiries please visit the [Concourse Tutorial Website \(https://o2.ohsu.edu/educational-improvement-and-innovation/concourse-syllabus-management.cfm\)](https://o2.ohsu.edu/educational-improvement-and-innovation/concourse-syllabus-management.cfm) or please contact the Mark Rivera at [rivermar@ohsu.edu \(mailto:rivermar@ohsu.edu\)](mailto:rivermar@ohsu.edu) or call 503-494-0934

Public Safety

[OHSU Public Safety-Portland Campus \(Marquam Hill and South Waterfront\)](https://www.ohsu.edu/xd/about/services/public-safety/)
(<https://www.ohsu.edu/xd/about/services/public-safety/>)

- Emergency on Campus: 503-494-4444 (Portland)
- Non-emergency: 503-494-7744; [Contact Public Safety \(mailto:pubsafe@ohsu.edu\)](mailto:pubsafe@ohsu.edu)

*Joseph B. Trainer Health & Wellness Center

Baird Hall, Rm. 18 (Primary Care) and Rm. 6 (Behavioral Health)

503-494-8665; For urgent care after hours, 503-494-8311 and ask for the Nurse on call.

[Wellness Center Information \(mailto:askjbthealth@ohsu.edu\)](mailto:askjbthealth@ohsu.edu)

[Wellness Center Website \(http://www.ohsu.edu/xd/education/student-services/joseph-trainer-health-wellness-center/\)](http://www.ohsu.edu/xd/education/student-services/joseph-trainer-health-wellness-center/)

If your home institution is not on the Portland campus, contact your home institution student support services for more information.

Ombudsman Office

Gaines Hall, Rm. 117

707 SW Gaines Street, Portland, OR 97239

503-494-5397; [Contact Ombudsman \(mailto:graybill@ohsu.edu\)](mailto:graybill@ohsu.edu); [Ombudsman Website](https://www.ohsu.edu/xd/about/services/ombudsman/)

[\(https://www.ohsu.edu/xd/about/services/ombudsman/\)](https://www.ohsu.edu/xd/about/services/ombudsman/)

Library: Biomedical Information Communication Center

[BICC Library Hours of Operation \(http://www.ohsu.edu/xd/education/library/about/hours.cfm\)](http://www.ohsu.edu/xd/education/library/about/hours.cfm)

Additional Items
