

THE DIVISION OF
HEALTH SCIENCES
INFORMATICS

POLICY HANDBOOK

THE JOHNS HOPKINS UNIVERSITY
SCHOOL OF MEDICINE

2008

Updates made 8/08

An electronic copy of this handbook can be found at:

<http://dhsi.med.jhmi.edu/content/handbook.html>

Additional information about Johns Hopkins Medical Institutions and the University in general can be found at: http://dhsi.med.jhmi.edu/content/student_resources.html

THE DHSI MISSION

The Division of Health Sciences Informatics is an interdisciplinary, academic division in the School of Medicine uniting a wide range of resources and expertise in health sciences information management, communication and technology. Through educational, research and service activities, the Division seeks to advance the development and use of information technology for decision-making, research, health care delivery and individual academic growth, and to increase the awareness of these resources among the Johns Hopkins health sciences community. Current research areas in the Division include medical informatics, genome informatics, information management, consumer health informatics, computer-based documentation systems for point-of-care, informatics and evidence-based medicine, biomedical editing and communication, and electronic publishing.

PROGRAM ADMINISTRATION

Harold P. Lehmann, MD, PhD, Director for Training and Research; Associate Professor Health Sciences Informatics, Pediatrics and Health Policy and Management

Nancy K. Roderer, MLS, Director, Division of Health Sciences Informatics Associate, Professor Health Sciences Informatics, and Director, Welch Medical Library

Kersti Winny, Senior Program Coordinator

Kim Thornton, Administrative Assistant

The Executive Committee

Harold P. Lehmann, MD PhD, Director for Training and Research; Associate Professor Health Sciences Informatics, Pediatrics and Health Policy and Management.

Patricia Abbott, RN, PhD, Assistant Professor, SON

Steve Mandell- MS, Senior Director, Center for Information Systems, Johns Hopkins Hospital.

Robert Miller-MD, Associate Professor, Pathology, SOM and Biomedical Engineering, SOM.

Anna Orlova -PhD, Visiting Associate Professor, Bloomberg School of Public Health.

Jonathan Pevsner, PhD, Associate Professor, Dept. of Neurology, Kennedy Krieger Institute Associate Professor, Department of Neuroscience, SOM.

Christoph U. Lehmann- MD, Associate Professor, Pediatrics & Director, Clinical Information Technology Johns Hopkins Children's Medical and Surgical Center.

Nancy Roderer- MLS, Associate Professor, Health Sciences Informatics, Director – Division of Health Sciences Informatics & Director, Welch Medical Library

Allen Y. Tien, - MD, MHS, Adjunct Associate Professor, Health Sciences Informatics, SOM & President, Medical Decision Logix

Jonathan Weiner-DPH, Professor – Health Policy and Management, Deputy Director Health Services R&D Center.

William Weiss- DrPH, Research Associate, Department of International Health

Dongming Zhang –MLS, MS, Director, Advanced Technology and Information Systems.

REQUIRED TRAINING FOR INCOMING FELLOWS

During the July/August orientation period, incoming students are required to complete the **online HIPAA training course** and receive a satisfactory score on the test. A certificate of completion must be filed with the DHSI Program Coordinator and with the School of Medicine registrar's office before students may register for any courses. Please visit <https://secure.lwservers.net/courseType.cfm> for instructions about completing the HIPAA training.

A four week intensive research methods course, “**Introduction to Public Health and & Biomedical Informatics**” # 600.707 <http://www.jhsph.edu/gtpci/icc.html>, and the **learning contract** are completed by incoming fellows each July during the orientation period.

The Course on Research Ethics (**CoRE**) offered through the Office of Continuing Medical Education on July 17 and October 8, 2008 must be completed during the first year of the fellowship. Please file a copy of the certificate of completion with the DHSI Coordinator. You may register by visiting the CME website, <http://www.hopkinscme.net/CORE.html>

HEALTH SCIENCES INFORMATICS RESEARCH TRAINING FELLOWSHIP: Program Requirements

While health sciences informatics conceives of the use of informatics broadly across the scientific and care continuum, our Program's focus is on public health informatics. The field of "public health" is concerned with the overall health and well being of communities and other population groups. These population groups can range from a handful of people to whole continents. Some of the core disciplines of public health include epidemiology, biostatistics, health policy, health services management, environmental health, and social/behavioral health. The focus of public health is on prevention rather than treatment of disease when this is feasible. Public health / population oriented interventions may take place within various levels of government (such as national, state or local health departments) and also within private organizations concerned with the delivery of services or other interventions. The delivery of direct preventive and medical services to individual patients with limited access to mainstream providers is also an important safety net role of most public health agencies in the US.

Public health informatics has been defined by discipline leaders and the Institute of Medicine as "the systematic application of information and computer science and technology to public health practices, research and learning."¹ The available sciences to apply are broadly conceived, such as cognitive science, anthropology, and organizational behavior. A public health informatician is a public health professional who works in practice, research, or academia, and whose primary work function is to use informatics to improve the health of populations.²

A public health informatician should be capable of specifying, developing, leading, or evaluating innovative applications of information technology and information systems that address public health or population priorities, studying how information is organized and used, and evaluating this work to contribute to the scientific field. While such specialists may develop expertise in a given area, all public health informaticians should have core competencies in both informatics and public or population health.

Examples of public health informaticians include informatics researchers studying the needs of a public-health community, informatics researchers applying novel informatics approaches to public or population health or evaluating the impact of such approaches, project managers for information technology implementations in public health settings, and program managers with primary responsibility for operation and maintenance of major public health information systems.²

The goal of the Research Training Fellowship is to ensure that trainees have the requisite skills to perform these functions, with an emphasis on independent public health informatics research.

The following are the requirements for the Program. Requirements may be waived by the program director upon demonstration of prior comparable or equivalent coursework/achievement

¹ Yasnoff WA, Overhage, MJ et al. A national agenda for public health informatics. J Public Health Management Practice, 2001, 7(6), 1–21.

² Karras, <http://phicomp.cphi.washington.edu/phi.html>

Program & Graduation Requirements:

Please note that Division Courses follow the School of Public Health's academic calendar, which differs slightly from the School of Medicine's. The calendar for the current year can be found on the DHSI website under Courses.

Primary Requirements

Requirements	Quarters	Hours	Workload	Course Number
Core Courses	8	24	3 hours/quarter	600.707 Introduction to Public Health and Biomedical Informatics 600.703 Informatics Evaluation 600.700 HSI Systems 600.702 Decision Support 309.86 Nationwide and Global Health Information Exchanges 600.708 Standards in Health Information Systems 221.637 Health Information Systems 600.705 Security, Confidentiality, Privacy, Law & Ethics
Elective/Enabling Courses	6	18	3 hours/quarter	Various
Practica	2	6	3 hours/quarter	600.805 Practicum
Fellows/Research seminar	8	16	2 hours quarter	600.704 Seminar in Informatics 600.803 HSI Grand Rounds
Research	8	36	3 hours/quarter first year + 6 hours/quarter second year	600.804 Mentored Research
TOTAL		100		

Other Requirements

Training Requirements for Human Subjects Research	Complete online prior to matriculation (http://irb.jhmi.edu/Guidelines/training.html)
Course on Research Ethics	Complete prior to approval of research design http://www.hopkinscme.net/CORE.html
eIRB training	http://irb.jhmi.edu/Notices/eIRB%20Training%20Classes
3-tier/MVC Web site	Construction of a 3-tier Web site, or one based on an MVC architecture, at any point in the curriculum

Core Courses: 8 Quarters

Course	Goal	Time	Competency
Year 1			
ME 600.707 Introduction to Public Health and Biomedical Informatics (Lehmann)	Learn a broad introduction to the field of informatics	Year 1 Summer 1-4 p. T/Th	Contrast differences in roles, needs, and solutions among major players in the national and commercial health IT and informatics communities Explain why things do or don't happen in IT, at the national and institutional levels Apply available sources of data, information, and knowledge to address healthcare and public health problems Define informatics
ME 600.703 Informatics Evaluation (Roderer)	Determine when and how to evaluate an informatics system or activity	Year 1, Quarter1 M 9:30-12:30	Articulate and prioritize stakeholders and their information needs (and risks) in a given healthcare or public health context Contrast articulated needs with the current state of the art Recommend an evaluation design for a given healthcare information problem/information system or informatics research question
ME 600.700 HSI Systems (Miller)	Propose and critique systems and software-development methods designed to address healthcare information problems	Year 1, Quarter2 T,Th 9-10:30	Judge the match between an information need and a recommended information system design Articulate threats to security, confidentiality in clinical and public health settings and suggest their amelioration
ME 600.702 Decision Support (Lehmann)	Become conversant with concepts and tools at the avant-garde of informatics research and practice, with a focus on decision support	Year 1, Quarter3 T,Th 9-10:30	Balance the advantages and disadvantages of alternative knowledge representations for providing decision support
Year 2			
HPM 309.86 Nationwide and Global Health Information Exchanges (Orlova)	Learn about information policy at the national and international levels and the place of public and population health in that context	Year 2, Summer MTWHF 9-4 x 1 week	Describe designs for existing and emerging interoperable software environments, at the implementation and policy levels, in in-patient care, ambulatory care, integrated health systems, regional health information organizations, and public health
ME 600.708 Standards in Health Information Systems (Orlova)	Learn the data, information, and knowledge standards critical to the successful implementation of local, regional, and national health-related information systems	Year 2, Quarter 2 MW 12:30-1:45	Identify the appropriate level of HITSP standards for an informatics problem, and select the appropriate standard within that level Create use cases and an organizational process to define an interoperability standard for a specific healthcare/regional situation Participate in a national standards-creation process

Course	Goal	Time	Competency
221.637 Health Information Systems (Weiss/Baqi)		Year 2, Quarter 2 Internet	Recommend population-based and provider-based methods by which data are secured and analyzed to provide indicators of health service use, health risk behavior, and outcomes relative to health status. Gain experience in developing curriculum
ME 600.705 Security, Confidentiality, Privacy Law & Ethics (Miller)		Year 2, Quarter 3 T, Th 9 – 10:30	

Faculty: Abdullah Baqui, Harold Lehmann, Robert E. Miller, Anna Orlova, Nancy Roderer, William Weiss

Ongoing: Years 1 and 2

Course	Goal	Time	Competency
600.704 Seminar in Informatics (aka Book Club) (Lehmann)	Learn skills expected of health informatics professionals	All year F 9-10:30	Demonstrate the ability to create healthcare-related software Demonstrate the ability to convey novel concepts to a group of auditors Apply established research methods to a research question.
600.803 HSI Grand Rounds	Learn current activities of faculty and external researchers and developers	Q1–Q4 F 10:45-11:45	Fulfill learning objectives of each session Lead a journal-club discussion

Elective/Enabling Courses: 6 Quarters

Selectives: (Unless placed out)	
2 semesters of:	600.315 (E) Database Systems 770.515 (S) Database Management Systems: Structure and Design 605.472 (A) Computer Network Architectures and Protocols
1 semester of:	312.615 (P) Organizational Behavior and Management 761.731 (S) Management and Organizational Behavior
1 semester of:	771.713 (S) Business Processes and Change Management 770.618 (S) Project Management for Information Systems 600.201 (E) IT Project Management 595.460 (W) Introduction to Project Management
2 semesters of	140.621-4 (P) Statistical Methods in Public Health I-IV 140.651-4 (P) Methods in Biostatistics I-IV 140.632 (P) Introduction to the SAS Statistical Packages 140.646 (P) Essentials of Probability and Statistical Inference I: Probability 340.601 (P) Principles Of Epidemiology 340.645 (P) Introduction to Clinical Trials 340.620 (P) Principles Of Clinical Epidemiology 340.635.11 (P) Clinical Trials: Issues and Controversies

[410.690 \(P\) Ethnographic Fieldwork](#)
 551.604 (P) Quantitative Tools for Managers
 xxx.xxx Decision Analysis in Health Informatics

Electives: Remaining courses may be taken from the following or from comparable courses (with Director's approval)

Area	
Informatics	140.662-3 (P) Spatial Analysis and GIS I-II 380.733 (P) Communication Network Analysis in Public Health Programs 730.713 (S) Data Mining and Disc Informatics 580.802 (E) Machine Learning 600.812 (E) Medical Imaging 260.602 (P) Introduction to Bioinformatics 260.655 (P) Protein Bio-Informatics 410.661 (P) Proteomics 600.145 (E) Introduction to Computer-Integrated Surgery 223.672.01 (P) Data Mgmt Methods In Health Research Studies (Holt) 600.xxx (M) HSI Project
Computer science	770.514 (S) Systems Analysis and Design 600.321 (E) Object-Oriented Systems 773.719 (S) Information Security Foundations 774.716 (S) Security Architecture 776.716 (S) Knowledge Management Systems 635.431 (A) Information Systems, Architecture & Methodologies
Communication	410.651 Communication Strategies for Health Education and Health Promotion 410.650 or 410.650.13 Persuasive Communication: Theories and Practice
Business	312.623-4 (P) Financial Management In Health Care I-II 605.791 (E) Tech Business 312.617 (P) Fundamentals of Financial Accounting 312.790.51 (P) Managing Organizational Conflict In A Healthcare Setting 551.603 Fundamentals of Budgeting and Financial Management 770.600.71 (S) IT Budget and Financial Management 770.618 (S) Project Management for Information Systems - BE 600.201 (E) IT Project Management
Evaluation	309.615.01 (P) Introduction To Methods For Health Services Research And Evaluation 305.613.01 (P) Design And Evaluation Of Community Health And Safety Interventions 309.616.81 (P) Introduction To Methods For Health Services Research And Evaluation I, II 313.630.01 (P) Concepts In Economic Evaluation 221.638.01 (P) Health Systems Research And Evaluation In Developing Countries 380.611.01 (P) Fundamentals Of Program Evaluation 380.714.11 (P) Fundamentals Of Program Evaluation 380.612.01 (P) Applications In Program Monitoring And Evaluation
Domain	180.609 (P) Principles of Environmental Health I 188.686 (P) Clinical Environmental and Occupational Toxicology 220.601 (P) Introduction to International Health 300.600 (P) Intro to Health Policy 300.651 (P) Introduction to the US healthcare systems

305.623 (P) Fundamentals of Clinical Preventive Medicine
 140.668 (P) Special Topics In Genetics And Genomics
 410.620 (P) Fundamentals of Health Education & Health Promotion
[410.650 \(P\) Introduction To Persuasive Communications: Theories And Practice](#)
 410.653 (P) Contemporary Issues in Health Communications
[410.755.81 Health Communication Programs](#)
 550.63 (P) Public Health Biology
 550.862 (P) Current Issues in Public Health
[551.601 \(P\) Managing Health Services Organizations](#)
 300.651 (P) Introduction to the US healthcare system

(M)=Medicine, (P) = JHBSPH, (S) = Carey School of Business (formerly SPSBE), (E) = Whiting School of Engineering, (A) = APL

Course directories:

APL	http://www.apl.jhu.edu/Classes/Classes.html
WSE/CS	http://www.cs.jhu.edu/courses/
BSPH	http://commprojects.jhsph.edu/courses/
BSPH	http://ocw.jhsph.edu/(open courseware)
Carey	http://carey.jhu.edu/itsprograms/

Certificates available, with approval of the Program Director:

[Carey Business School Post-masters IT certificate](#)

<http://carey.jhu.edu/its/itc.cfm?action=curriculum&areacode=ITC&majorcode=ITC>

[The Graduate Certificate in Information and Telecommunications Systems](#)

Practica: 2 Quarters

The purpose of the Health Sciences Informatics Practicum is to provide fellows in the HSI Research Fellowship exposure to the use of information technology in a wide variety of settings in the health sciences environment. Based on the notion that the best learning is situated learning, the goal here is to provide trainees with opportunities to see informatics and information technology issues in action. Our intent is not so much to train fellows on existing systems, but to encourage them to think how systems can be improved, and also to provide project managers with an informatics research perspective with which they may not be familiar.

Practica may be fulfilled in an academic or business context, and with non-profit organizations and government agencies. Fellows are encouraged to nominate sites for future practica. Specific sites, projects and activities are arranged in collaboration with the fellow, the Program Director, and the practicum preceptor.

Fellows commit to about 8 hours a week at a practicum, either on site or not, depending on arrangements made with the practicum preceptor. The Fellow is responsible for submitting a final report to the Program Director within 2 weeks after completion of the practicum. The final report should contain the learning objectives, and document how (or whether) the objectives were met. It must also include at least 1 report generated for the preceptor as an appendix, and document attendance. The final report must be submitted electronically to the Director, Program Director and practicum preceptor.

In order to receive proper credit for your practicum work, it is important that you follow the sequence of procedures outlined in the Registrarial section of this Handbook.

Fellows/Research seminar

600.704 Seminar in Informatics (Book Club)

The purpose of the Fellows’ Seminar is to support the research program and to fill in aspects of the curriculum not addressed elsewhere. The course of activity in the Seminar is governed by the research-development process. Beginning in Year 1, Quarter 2, first-year fellows will follow the sequence outlined below.

When	Who	What
Year 1, Quarter 2	First-year fellows	Review of their informatics problem of interest
Year 1, Quarter 3	First-year fellows	Research question, hypothesis, and design (with committee members in attendance)
Year 2, Quarter 1	Second-year fellows	Progress on study execution
Year 2, Quarter 4	Second-year fellows	Research results (with committee members in attendance)

Colloquially called, “Bookclub,” its schedule is maintained at <http://wiki.welch.jhmi.edu/confluence/display/DHSI/Bookclub>

600.803 HSI Grand Rounds (DHSI Seminar)

The purpose of Research in Progress is to inform fellows about, and engage fellows in, ongoing informatics research and development by Hopkins faculty as well as by researchers and developers in the Baltimore/Washington area and elsewhere. The course incorporates a monthly Journal Club directed by Nancy Roderer. Fellows are expected to lead at least one Journal Club discussion each year.

The current schedule of RiP is maintained at <http://dhsi.med.jhmi.edu> Titles, presentation slides, and video of past presentations are maintained at http://dhsi.med.jhmi.edu/content/past_seminars.cfm

Mentored research 600.804

Fellows are expected to complete an informatics research project by March of year two, and to submit a manuscript for publication based on that research. The project is developed in stages, with the fall of the first year spent in defining the topic, performing the literature search and evidence synthesis. The winter is spent in designing and defending the design; work generally commences in the spring of the first year, and is completed by spring of the following year.

Each fellow is responsible for assembling their research committee, and its composition must be approved by the Program Director. While a member of the Executive Committee must be on the committee to supervise progress, that member does not have to be chair of the research committee. The research topic may be based on the interests of fellows on entering the program, or on interests developed during course work, practica, or discussion with Division faculty.

The goal in choosing the research topic is to define a 10-year problem and a 2-year project. The problem should be one that the fellow can continue working on after completion of the fellowship and one in which the fellow can become a recognized expert. The design of the project can involve any phase of the informatics development cycle, from formulation, through design, implementation, and evaluation.

As with practicum, it is important that students follow the sequence of procedures outlined in the Registrarial section of this Handbook in order to generate the proper documentation for their research work. Please see the training requirements that are pre-requisite to the start of the research project described below.

Training Requirements for Human Subjects Research

Much of informatics research falls under human subjects research, whether those subjects are patients, users, or experts, whose review is sought in the course of completing a study. In keeping with School of Medicine requirements (<http://irb.jhmi.edu/Guidelines/training.html>), all fellows must complete the following courses before having their research design approved:

- Human Subjects Research (HSR)
- Conflict of Interest and Commitment (COI)
- HIPAA General Privacy Issues (HIPAA GPI)
- HIPAA Privacy Issues Relating to Research (HIPAA IRR)
- Course on Research Ethics (C.O.R.E)

Online segments are available at <https://secure.lwservers.net/> The HIPAA components must be completed prior to matriculation.

Course on Research Ethics

Information on C.O.R.E is maintained at <http://www.hopkinscme.net/CORE.html> From that site:

The Johns Hopkins University is deeply committed to the protection of human research subjects. This commitment begins with comprehensive compulsory education and training of its faculty, student and staff researchers who conduct human subjects research. The Course on Research Ethics (C.O.R.E.) is designed to address key concepts in human subjects protection in specific research communities.

CORE consists of three parts and provides practical information on the ethical issues involved in research protocol development and implementation:

- *a web-based pre-conference knowledge assessment found at the compliance training website <https://secure.lwservers.net>*
- *a one-day instructor-led course consisting of lectures and small group discussions*
- *a post-conference web-based portion found at the compliance training website <https://secure.lwservers.net>*

Fellows must successfully complete this training before getting their research project design approved.

eIRB training

Institutional Review Board application is a fundamental step in performing human subjects' research. Fellows are responsible for entering the IRB application (their research committee chair is the Principal Investigator), which is done online. While not required, a face-to-face course (<http://irb.jhmi.edu/Notices/eIRB%20Training%20Classes>) is strongly recommended by previous fellows.

Please note that ALL students applying for an IRB application MUST complete additional compliance courses. Visit <http://irb.jhmi.edu/Guidelines/training.html> for details.

3-tier/MVC Web site

While the focus of our training program is on the human aspects of informatics, fellows find it important and useful to “know the language” of IT development, so as to direct others better, so as to have credibility with developers, and so as to judge development plans with appropriate skepticism.

The Program requires that fellows demonstrate knowledge of software architecture and development through the creation of a Web site or a stand-alone program that shows either a 3-tiered architecture (input, mediator, database) or a Model–View–Controller architecture. This project may be completed at any point prior to the entering the program or during the fellowship period.

Year end Review

Each May the Executive Committee reviews all first year student files, which include the Grade report, Template (most recent), Practicum deliverable(s), Bookclub PowerPoint Presentations (from Dec. literature review and April design outline), and Research Plan. Participation and attendance are also reviewed

Please be sure to submit the necessary documents to Kim Thornton in time for the review.

Graduation Requirements

1. HIPPA training, Research Methods Course, Research Ethics Course, Learning Contract
2. Core Courses: 7 quarters
3. Ancillary: 7 quarters (Enabling + electives)
4. Practicum: 2 quarters
5. Build a 3 tiered web site
6. Publishable essay of 30 pages. See important information about essay submission below.

A checklist of requirements for essay submissions can be found online and in the back of this handbook. Please note that the "library bound copy" MUST be identical to the draft to be submitted for publication. JHU maintains a web site with official rules regarding essay submission: <http://www.library.jhu.edu/services/cbo/guidelines.html>

REGISTRARIAL PROCEDURES

Registration

With the exception of fellows who are also doctoral candidates at the Bloomberg School of Public Health, DHSI fellows will register for all courses, including any that are interdivisional, at the School of Medicine Registrar's Office (Broadway Research Building 147). Registration forms require Dr. Lehmann's approval and signature before they can be accepted by the SOM Registrar. Any problems that arise with interdivisional registration should be addressed through the DHSI Program Coordinator and SOM Registrar's Office. A copy of all registration forms should be provided to the Coordinator for the student's academic record.

Please note that, unlike other JHU departments, the School of Medicine does not have an electronic registration system. Most SOM forms are on hand in the DHSI Program Coordinator's office, or may be obtained at the Broadway Research Building in Room 147.

DHSI Fellows who are also doctoral candidates at the School of Public Health should see the Program Coordinator about establishing primary and secondary registration records at the JHSPH and the SOM.

Fall and Spring Registration

Submit the Change of Schedule form and the green Interdivisional Registration form if applicable.

Summer and winter registration

Because winter and summer institute courses are not covered by regular tuition, the Division is not able to cover the cost of attendance. If you wish to register and pay the additional fees, submit the Change of Schedule form, Interdivisional Registration form, and the Verification of Enrollment form (obtained from the SOM Registrar's Office) to the School of Public Health

Please note that AS/EN, which includes the AAP program WILL NOT process your registration until after the regular and late registration period ends for their primary students

ADD/DROP Policy

Students may add and/or drop a course up to the 'midpoint' of each quarter by submitting the Change of Schedule form. Dropping a course after the midpoint could result in a permanent W or F on official transcripts.

Pass/Fail and Course Auditing

All courses, including those not in the DHSI core sequence must be taken for a letter grade. Pass/Fail and Auditing are options only for courses that you will not count toward the degree requirements and require the approval of the Program Director.

Independent Study

Independent Study courses must be approved by the Program Director. Please note that it is important to follow the steps outlined below in order to comply with DHSI/SOM registration and grading policies.

Students submit a course description to the Training Program Director, Course Instructor and Program Coordinator. The description will include the length of Independent Study (up to 2 quarters or 1 semester), the time commitment (given in hours per week or quarter), the student's goals and what the deliverable will be.

On approval by the Program Director, the Coordinator will supply you with the appropriate course number for registration. It is important that the course instructor be prepared to submit a letter grade on their departmental letterhead to the Program Coordinator.

Practica Registration Procedures

In order to receive credit for completing a practicum it is important that you follow the DHSI procedures described here.

Have the Preceptor email the Program Director stating practicum length, goal, and deliverable. For practicum occurring outside of Johns Hopkins, the Practicum Agreement Form, which can be found on our website, must also be completed.

On receipt of the Director’s approval, students may register for ME 600.805 at the School of Medicine Registrar’s office.

By the 2nd week of the practicum, students must submit a list of objectives to the Preceptor, Program Director and Program Coordinator. If a practicum is scheduled for more than one quarter, a progress report should be submitted the Program Coordinator via email at the end of each term.

Fellows are required to generate a final report on their practicum experience (deliverable).

For further details on practicum please visit: <http://dhsi.med.jhmi.edu/content/practica.html>

Research Project Procedures for ME 600.805

For planning purposes, it is important that fellows be familiar with the milestones of the Research Project:

Year 1:	Sept 1:	Statement in the learning contract of general focus of the project
	Dec 1:	Presentation in Bookclub of literature review and presentation of 3 possible questions to pursue
	May 1:	Presentation in Bookclub of research methods and identity of research committee (who, optimally, attends the presentation)
Year 2:		
	Weekly	email updates re progress
	Oct 1:	Presentation in Bookclub on progress
	March 1:	Submission to AMIA of preliminary results (if applicable) for Fall meeting
	Apr 1:	Submission to NLM of abstract for plenary or poster presentation at June meeting
	June 1:	Presentation in Bookclub of final results
	July 1:	Presentation to Dr. Lehmann of paper draft

Grade Requirements

The overall grade point average of coursework counted toward program requirements must be a 3.00 or higher (B average). At most, two courses with a grade lower than B– may be counted towards the coursework requirements, and no course with a grade lower than C- may be counted. At most, two independent study courses can be counted towards the course requirements.

Except in the case of an independent study, no courses with grades of Satisfactory (S) can be counted towards the coursework requirement. Courses with grades of S will not be included in the grade point average calculation.

A grade of D or F in a non-core course will result in probation; a second D or F would be cause for dismissal from the program. If the course is a DHSI core or other required course, a grade of C or below will result in probation.

Probation

Upon being placed on probation the student will receive an email and official letter from the Program Director. An ad hoc subcommittee, comprising at least three members of the Executive Committee (of the Director's choosing) will be assembled, and a formal meeting with the student scheduled. During the meeting the student will have the opportunity to review the grade with the committee, and to develop consensus on a plan to monitor future progress in the program, including a time line for meeting the program's expectations. The notification and committee proceedings will become part of the student's permanent record, as will documentation of the students' ongoing progress.

On review of the fellows' academic progress, the committee will recommend the students continuance or dismissal from the Program.

Progress Tracking

Because the School of Medicine does not have an electronic database for grade tracking, it is the responsibility of each fellow to track their progress throughout the fellowship. A standard template designed to aid in this process can be found at http://dhsi.med.jhmi.edu/content/student_resources.html, under DHSI specific forms. At the end of each quarter students must make arrangements for reviewing their progress with the Program Director. Please see the Coordinator to obtain a copy of your file record a week or two before the Quarter ends so that you may update your progress and submit it to the Director for review 3 days before your scheduled meeting. Any revisions made to the Tracking Template during the review meeting will be submitted to Coordinator by the Program Director and be added to the official file.

In addition to the DHSI Progress Tracking, the School of Medicine Registrar's Office provides each student with a copy of their registration record for review annually. It is important that students check this record carefully for accuracy and report any discrepancies promptly.

FINANCIAL PROCEDURES

Stipend Checks

For students receiving a JHU stipend, the University payroll is processed semi-monthly, on the 15th and the last day of the month. You are strongly urged to enroll in direct deposit using form <http://www.controller.jhu.edu/uforms/c100.pdf>. Your first pay will be the last business day in July and will be retroactive to July 1st. Checks are available on paydays, after 11am, from the Welch Library front desk guard. After payday, checks may be retrieved by contacting staff at the Welch Service Center desk, second floor, Welch Library.

All pay stubs are electronic. To view and print pay stubs visit:
<https://essapps.jhu.edu/webapp/FlexBen/FlexBenApp>

Payroll Paperwork

Payroll paperwork is processed by the Welch Library HR Manager, Lyndie Vantine, lby@jhmi.edu. To fulfill the I9 identification requirements, students must present to her either a valid passport OR your current driver's license OR birth certificate **and** an original SSN card.
***Failure to present the required documentation may result in the delay of the first stipend check.**

Health Insurance

As outlined in the offer letter, all students must produce proof of US medical insurance coverage or enroll in the JHU student plan. Coverage in the University plan is covered by the Division. Family coverage in the University plan is available for fellow's spouse and children at their own expense.

Fellows who go on Leave of Absence will receive coverage for up to two months from the start of their leave after which they will be eligible for COBRA coverage if they have not obtained new coverage through employment or other sources. We recommend that students acquaint themselves with the costs and terms of COBRA in plenty of time to make an informed choice should they decide to go on leave.

Travel

There are two conferences that students attend each year: Fall AMIA, June NLM Informatics Trainees Meeting. Often you have to pay out of pocket and get reimbursed for the events. There are funds for each fellow to travel to AMIA and NLM each year. Students may also be reimbursed up to \$300.00 for another meeting that focuses on their specific research interest. Travel must be approved in advance by the Program Director with supporting documentation provided to the program coordinator.

Reimbursement

The accounting office at JHU requires students/staff and faculty to submit original receipts along with their requests for reimbursement. Please submit reimbursement requests to the Division Coordinator. We recommend that you keep a copy of submitted receipts for your records.

Every year students attend the **American Medical Informatics Association** conference. While annual student memberships or journal fees are not paid for by DHSI, we will reimburse for conference registration and one half day tutorial. This will be reimbursed using a check requisition form and can be processed at any time. All other travel related reimbursements for the conference will be processed using the JHU standard form. Original receipts must be attached. DHSI pays for transportation (including parking), double occupancy hotel fees and food after the conference has taken place.

OFFICE SERVICES

Mail

Mail relating to DHSI may be brought to the Coordinator's office prepared to be sent out. There are two bins, one for campus and interoffice mail and one for outside delivery. No personal incoming mail should be sent to the Division. When items pertaining to your training are delivered they will be placed in your shared campus mail box. Envelopes are also available in the main office. Please see Kim Thornton about express mail services.

Fax

A fax machine belonging to ATIS is located in 1-203. They ask that it be used only for DHSI related items. Dial 9 before the area code and number.

Telephones

Each cubicle is equipped with a telephone. Bills are monitored by the Associate Director of Finance. We ask that you obtain permission from the Program Director if you need to make international calls for research. To set up voicemail on your office phone, Dial 4-8900 and follow the prompts.

Email

Students are assigned a JHU email address. We ask that you check this email frequently and use it as your main address for all student related activities. Students are automatically entered in JHED, a campus directory once payroll and appointment forms have been processed.

To initiate access, log onto: <http://jhed.jhu.edu/jhed/index.cfm> and click "login" in the upper right corner. Set up should be self explanatory from this point. Contact Robert or Michael in Room 1-207 if you experience any difficulties. It is very important that you clean out your JHED account often as there is limited storage for email and you will likely meet your QUOTA every few months. Filing emails regularly will prevent your mailbox from becoming full.

Calendar

Students will have access to the Corporate Time calendar. Please familiarize yourself with this early on as you will be using it to schedule your appointments with the Program Director.

Office Supplies

The division maintains basic office supplies - pens, folders, tape, staples etc. If you require special supplies please email your request to the Administrative Assistant. Orders are placed once a month. If you need something immediately, please buy it and bring a receipt to the Coordinator for reimbursement.

Services Not Available

Because the administrative staff is limited, we are not able to provide any secretarial support to DHSI Fellows, such as meeting arrangements and mailings. Please use voicemail and email for personal messages.

ARRANGING FOR THE PRACTICUM

The purpose of the Health Sciences Informatics Practicum (HSIP) is to provide fellows in the HSI Research Fellowship exposure to the use of information technology in a wide variety of settings in the health sciences environment. Based on the notion that the best learning is situated learning, the goal here is to provide trainees with opportunities to see informatics and information technology issues in action. Our intent is not so much to train students on existing systems, but to encourage them to think how systems can be improved, and also to provide project managers with an informatics research perspective with which they may not be familiar. A practicum "starts" when Dr. Lehmann gets an email from your preceptor that looks something like this:

Dear Dr. Lehmann,

This is to confirm that <student> will be doing his informatics practicum with our <specify> team for <number> months starting <date>. I understand that the goal is to give <student> exposure to the work we do here. While I will be his formal preceptor, he will be working most closely with <supervisor>. The main project concerns <short description>. <Student>, <supervisor> and I have discussed that <student's> "deliverable" will be <specify>, subject to change.

Many thanks,
<Preceptor name>
<Titles>

If the practicum is performed outside of Hopkins, then a PRACTICUM AGREEMENT form needs to be sent to Dr. Lehmann as well (visit: http://dhsi.med.jhmi.edu/content/student_resources.html under "forms").

These items protect you and justify the practicum.

The advantages to the students are:

- To gain practical experience in management of IT
- To gain practical experience with specific IT systems
- To gain insight into informatics problems in a variety of settings
- To develop hypotheses that require research

The advantages to the practicum preceptor are:

- To get added manpower
- To get reports that could not otherwise be obtained

Administration of Practicum

Students will be placed into practicum groups on a voluntary basis, with the Practicum Director

making final assignment in the case of conflict. Practicum preceptors will negotiate with the Director the number of practica they will run during a year. Unless explicitly stated otherwise, there will be only one **student** placed with any practicum group at one time. Practica will last 1-4quarters, depending on the preceptor's preferences. **Students** will join an active work group, supervised directly or indirectly by the practicum preceptor.

Responsibilities of the **Student**

- Attendance

The **student** is responsible for spending about 20% of his time at the practicum site, with the specific timing to be negotiated with the practicum preceptor. "Attendance" may include attending project and staff meeting, as well as "front-line" activity, like working with clients.

- Learning Objectives

The **student** is responsible for completing a list of learning objectives by the end of the second week of the practicum. An objective should be expressed in the format, "By the end of the practicum, I shall have demonstrated—," and options may be the demonstration of knowledge (through reports generated), or the demonstration of skills (through actions taken). Objectives must be submitted in electronic format to the practicum preceptor, Director and Program Coordinator. The practicum preceptor and the Practicum Director will review objectives.

- Reports

- The **student** is responsible for sending the coordinator a brief report of progress at the end of every quarter.
- Final report

The **student** is responsible for submitting a final report to the Practicum Director within 2 weeks after completion of the practicum. The final report shall document attendance. It shall also contain the learning objectives, and document how (or whether) the objectives were met. The final report shall include any reports generated for the preceptor as an appendix. The final report shall also include a list informatics issues that were raised in the fellow's mind in the course of the practicum. The final report must be submitted electronically to the Director, Program Coordinator and practicum preceptor.

*To facilitate creation of the final report, **students** are encouraged to keep a journal of their activities and thoughts in the course of the practicum*

- Evaluation

The **student** is responsible for providing the Director with an evaluation of the practicum experience, including comments about the quality of the educational experience and the quality of the precepting within two weeks of the practicum's end. The evaluation must be sent in electronic format to both the Director and Program Coordinator.

NOTE: It is the responsibility of the **student** to maintain their individual timeline. All required documents must be submitted by the deadline. To request an extension, please draft a letter to the preceptor, Director and Coordinator citing the reason for your request and the date you intend to submit the documents.

Responsibilities of the Practicum Preceptor

- **Agreement**

The preceptor is responsible for emailing the Director and Program Coordinator agreeing to take on the **student**, stating that they understand it will be about an 8 hour per week commitment. The specifics of the deliverable may take an additional 2 weeks, but should be defined by the fourth week, again, in an email from the preceptor.

- **Scheduling**

The preceptor is responsible for placing the fellow in an appropriate work group, and for negotiating a schedule with the **student**. The Practicum Director is available to meet with work-group members to explain the purpose and functioning of the practicum.

- **Assignment**

The preceptor is responsible for assigning reports to the **student**. Suggestions for reports may come from work group members or from the **student**. Questions about propriety of a report may be discussed with the Fellowship Director.

- **Evaluation**

The preceptor is responsible for writing the Fellowship Director a letter of evaluation. The letter should make a statement regarding the **student's** attendance, the **student's** quality of participation, the Fellow's contribution to the group, and the degree to which the **student** demonstrated learning during the practicum. The letter should also make a statement about the quality and content of the reports. The preceptor should submit a copy of this evaluation to the Program Coordinator.

Responsibilities of the Practicum Director

- **Practicum assignments**

The Director is responsible for making all final decisions on practicum assignments, including which practica will be offered, and which Fellow is assigned to which practicum when.

- **Adequacy of the educational experience**

The Director is responsible for the review of the learning objectives, and the reports.

- Evaluation

The Director is responsible for generating a grade for the **student**. The Director is also responsible for providing feedback to the preceptors.

- Administration

The Director is responsible for maintaining a file of all required documents submitted by the **student** and preceptor with regards to the experience.

Past Practicum Sites

Hopkins academic:

Christoph Lehmann: Pediatric Clinical Informatics and Patient Safety
Myron Yaster: Narcotic prescription order entry
Patti Abbott, Krysia Hudson, Steven Klapper: Eclipsys simulation lab
John Eng: Radiology diagnostic performance
Russ Taylor: Center for Integrated Surgical System

Information Prescription (Welch Medical Library)

Karen Robinson: Evidence-based practice center
Peter Pronovost: (Center for Innovation Quality and Partial Cure

Paul Law: Autism research database
Jonathan Weiner: EHR evaluation
Bill Yasnoff: Louville HealthTrust

Harold Lehmann: Decision models, Ethiopia/PEPFAR
Bill Weiss: Monitoring and Evaluation
Norma Kanarek: www.communityPHIND.net

Jonathan Pevsner: Human disease database design; SNP visualizer
Steve Bova: Research informatics

Hopkins IT:

Alan Coltri, Bill Ravitch (JHH, GI): Procedure Reporting System
Alan Coltri: System architecture; Wiz order (Johns Hopkins Medical)
Mike McCarty: Network Technology Services (e.g., RAUL authentication, Remote services survey)
Dongming Zhang: ATIS (e.g., fellows Web site)
Clinical information system design (Department of Emergency Medicine)
Information use analysis (Department of General Pediatrics)
Harold Lehmann: Pediatric culture book

JHMCIS: Multiple committees (CPOE implementation; decision support)
Amy Knight: CPOE (Bayview)
David Plaut: Casemix office (and Coding, with Paul Allen)

Joe Lombardo: Biosurveillance (APL)
Trish Perl, Xioayan Song: Biosense (Hopkins-->CDC)

Non-profit Organizations:

Peter Greene, Valerie Smothers: Medbiquitous Consortium
Diabetes education database development
Guy Fisher: Primary Care Coalition
Buzz Stewart, Jim Walker: Geisinger health services research/consumer health informatics
Robert Sawyer: VA
Elliot Siegel: Imaging informatics (VA)
Sam Dowding: JHPIEGO

Government Agencies:

Graphical information system implementation (Baltimore City Department of Health)
Kimerly Elenberg: System specification (USDA)
Military systems: Tricare
CMS
Cheryl Austein Casnoff: Health Resources and Services Administration (see below)
Bob Mayes: PEPFAR Strategic Information
Laurence Desi, Jr: Social Security
NCBI help desk

For profit:

Allen Tien: Medical Decision Logix (oncology research management system; description logics;
many others)
Marion Ball, Richard Bakalar: Informatics consulting (IBM)
Kathleen McCormick: SAIC
David Kates: WebMD (in town)

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Committee
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