

Biomedical Informatics
Graduate Program Procedure Manual

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Program Specific Admission Requirements

PhD Criteria:

1. There must be a research match between the prospective PhD student's research interests and a Faculty member.
2. PhD admission is NOT a guarantee of funding. Grant funded slots may be able to commit now (Grant PI's decision) where there is a Faculty match but we won't know if we have any university slots until April.
3. Student essay/candidate statement must clearly articulate a topic area of interest present within the department.
4. Non US citizens will need to be approved by the Graduate School to assure that immigration issues can be worked out in time.

All Certificate Applicants: All certificate applicants must either be a working professional in the area of application (e.g., professional who just wants to learn more to support current job in the field) or an applicant using Certificate path for GRE avoidance. A graduate Certificate alone is insufficient background to support informatics practice; is not a credential that should lead to a job in informatics without prior work experience.

Students must have either computational, biology, or healthcare training (preferably strength in one or more). Candidate's statement must articulate a career plan in biomedical informatics and a clear understanding of what biomedical informatics is.

Approved BMIG Graduate Program Advisors - Graduate Faculty Status			
Professor	Associate Professors	Assistant Professors	Instructors
Fred Prior, Ph.D.	Intawat Nookaew, Ph.D.	Ahmad Baghal, M.D., M.S.	Maryam Garza, MMCi, MPH
David Ussery, Ph.D.	Joseph Jensen, M.D., M.B.A.	Sudeepa Bhattacharyya, Ph.D.	
Feliciano Pele Yu, M.D., M.S.	Donald Johann Jr, M.D.	Galina Glazko, Ph.D.	
Laura James, M.D.		Melody Penning, Ph.D.	
Linda Larson-Prior, Ph.D.		Lawrence Tarbox, Ph.D.	
Alison Oliveto, Ph.D.		Tom Powell, M.D., M.S.	
Grover Miller, Ph.D.		Se-Ran Jun, Ph.D.	
Charlotte Hobbs, M.D., Ph.D.		Jonathan Bona, Ph.D.	
		Michael Robeson, Ph.D.	
		Mike Leuze, Ph.D.	
		Thidathip Wongsurawat, Ph.D.	
		Piroon Jenjaroenpun, Ph.D.	
		Michael Bauer, Ph.D.	
		Horacio Gomez-Acevedo, Ph.D.	
		Yasir Rahmatallah, Ph.D.	

*Approved BMIG Graduate Program Advisors can advise Certificate, Masters and PhD students.

Other DBMI Faculty		
Professor	Assistant Professors	Instructors
Hari Eswaran, Ph.D.	Cody Ashby, Ph.D.	William Bennett
Robert Delongchamp, Ph.D.	Erich Peterson, Ph.D.	Kirk Smith
	Christopher Wardell, Ph.D.	Tracy Nolan
	Tommy "Mack" Bird, Ph.D.	Kenley Mooney
	Kevin Sexton, Ph.D.	
	Mohammed Elfaramawi, Ph.D.	
	Corey Hayes, Pharm.D., M.P.H.	
	Atul Kothari, M.D.	



To facilitate advising and course selection, indicate your level of proficiency in each of the background areas relevant to graduate studies in biomedical informatics listed below. Applicants with different backgrounds are welcomed and course selection highly depends on the chosen research area. Proficiency in all the listed subjects below is not a strict requirement for admission.

Please note that your knowledge of a subject area may come from past coursework, research pursued earlier in your academic career, or from work experience. Please indicate briefly for each topic the source of your knowledge in the area, and feel free to expand in the “Comments” sections.

Courses	Skill Level					Source for knowledge of this area
	No Level of Competence	Low level of Competence	Average level of competence	Moderately high level of Competence	High level of competence	
Mathematics and Statistics						
Calculus I, II, III						
Differential Equations						
Linear Algebra						
Statistics and probability						
Set theory and Logic						
Comments:						
Biology						
Undergraduate Biology course (i.e. UAF: <i>BIOL 1524 Biological Principles</i> , UALR: <i>BIOL 1401 Science of Biology</i>)						
Genetics						
Molecular biology						
Cell biology						
Molecular evolution						
Immunology						
Anatomy and Physiology						
Comments:						
Chemistry						
Biochemistry						
Comments:						
Healthcare and Medicine						
Medical Terminology						
United States Healthcare System						
Class level Pharmacology						
Comments:						
Technology and Computer Programming						
Introductory Computer Science course (i.e. UAF: <i>CSCE 2004 Programming Foundations I</i> , UALR: <i>CPSC 1375 Programming I</i>)						
Computer programming any language						
Introduction to Databases						
Comments:						



Graduate School

DEPARTMENT OF BIOMEDICAL INFORMATICS
COLLEGE OF MEDICINE

DECLARATION OF ADVISOR FORM

This form is used solely for the purpose of changing Advisors. Advisors must hold graduate faculty status and be on the DBMI Curriculum Committee’s approved list of Advisors. The student is responsible for the completion of this form. The student should complete this form by meeting with their initial advisor and intended advisor to obtain the appropriate signatures. The signed form should be submitted to the DBMI Education Coordinator.

STUDENT NAME: _____ **ID#:** _____

NAME OF CURRENT ADVISOR: _____

NAME OF PROPOSED ADVISOR: _____

SIGNATURES

CURRENT ADVISOR SIGNATURE: _____ **DATE:** _____

PROPOSED ADVISOR SIGNATURE: _____ **DATE:** _____

OFFICE USE ONLY:

Gus Processing Date:	Student Notification Date:

Rev. 1/2020

ADVISOR/ADVISEE AGREEMENT

The advisor/advisee relationship requires commitment on the part of both partners. This partnership is an agreement between advisor and advisee to share experiences and expertise to aid in professional growth. Both parties have discussed their roles and responsibilities as noted here.

ADVISOR	ADVISEE
Facilitate advisee learning	Identify needs & set goals (IDP)
Provide or advise on skill sets	Be open to new skills & knowledge
Provide guidance	Seek guidance and advice
Provide feedback	Accept feedback
Listen, support, encourage	Accept responsibility for actions
Provide feedback on advisees IDP	Update/revise IDP
Maintain confidentiality	Maintain confidentiality
Maintain regular contact	Maintain regular contact

CONTRACT AGREEMENT

We agree to meet in-person _____ times over the next _____

- We agree to be on time for all meetings.
- When a meeting time must be re-arranged, we agree to do so within 8 hours of the meeting time.
- We agree that intermediate issues can be resolved via email or telephone.
- Following our initial meeting, which will be initiated by the advisor, we agree to establish a regular meeting time and place.

We agree that in-person meetings will be of _____ duration

- During meetings, cell phones and pagers will be turned off.
- We agree that our focus during this time will be on goals assessment and advising.

We agree that this agreement can be terminated by either party without blame or censure by either party.

Advisee Name: _____ Phone Number: _____ Advisee Email: _____

Advisee Signature: _____ Date: _____

Advisor Name: _____ Phone Number: _____ Advisor Email: _____

Advisor Signature: _____ Date: _____

***Each party should keep a copy of this agreement**

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES
GRADUATE SCHOOL

Doctoral Advisory Committee

Per the guidelines contained in the UAMS Graduate Student Handbook and the UAMS Graduate School Catalog for awarding the Doctor of Philosophy degree, the faculty members listed below are designated to serve as the Doctoral Advisory Committee for_____.

Program:_____

Please print/type name of major graduate advisor_____.

(Please Print/Type names of Doctoral Advisory Committee and graduate program affiliation):

Date _____ Signed _____
Student

Date _____ Signed _____
Advisor

Date _____ Signed _____
Graduate Program Coordinator

Date _____ Reviewed _____
Dean of the Graduate School

DOCTOR OF PHILOSOPHY DEGREE REQUIREMENTS

Listed below are the requirements of the UAMS Graduate School for the awarding of the Doctorate of Philosophy degree. Individual graduate programs may have additional program specific requirements for the awarding of the degree. *Requirements specific for the Graduate Program in Biomedical Informatics are in italics and in the table.*

Initial Advisor. *The program director serves as the initial advisor for all entering students during the first year. The Program Director will work with the Student and appoint a faculty advisor during the second semester of the first year. The faculty advisor will advise the student beginning at Semester 3 until the Doctoral Advisory Committee (DAC) has been appointed. The initial advisor is responsible for Individual Development Plan (IDP) and Plan of Work (POW) finalization with the student during the first semester and required semester updates to the IDP and POW.*

Interprofessional Education (IPE) Requirement: The Graduate School requires all students who have entered a MS or PhD program from Fall 2015 and beyond to complete the Exposure phase of the IPE curriculum prior to graduation. However, students are encouraged to attend other IPE activities as well. The Exposure phase requires participation in 2 activities.

- The IPE Exposure workshop (Generally hosted during New Student Orientation each Fall).
- An Exposure Bridge Activity. Activities include movies, book readings, and observations. A list of these activities can be found [here](#). Registration is required for some activities.

Doctor of Philosophy Candidacy Exam. Candidates for the Doctor of Philosophy degree must pass a candidacy examination administered by their program. This examination is normally administered after approximately two years of graduate study; however, the date of the examination is at the discretion of the program. The program will submit the results of the examination to the Graduate School Office immediately following the examination. After the student has passed the Doctor of Philosophy Candidacy Examination, the student must register for at least one credit hour of dissertation for each semester and one credit hour of dissertation for each summer session until the degree is awarded. Registration for a minimum of eighteen semester credit hours of dissertation is required of doctoral degree candidates.

In Biomedical Informatics the candidacy exam consists of (1) distribution and defense of the doctoral research proposal to the Faculty. The proposal must be in the research plan format of sufficient quality to be submitted for a federal F31 grant application. And (2) the candidate's oral responses to questions relevant to the doctoral research posed by the proposed Doctoral Advisory Committee. There will be a public portion of the oral candidacy exam and a closed session with only the candidate and their proposed DAC.

Time Frame and GPA Required for Completion of Degree. After passing the candidacy examination the degree must be completed within seven consecutive calendar years. *A minimum cumulative GPA of 3.0 on all course work is required for completion of a degree. The expected time to completion for the Ph.D. is three years from advancement to candidacy.*

Doctoral Advisory Committee. A Doctoral Advisory Committee must be appointed immediately after the student passes the candidacy examination, if such a committee has not been previously established. At the time the committee is appointed, notification of the committee membership must be forwarded to the Graduate School Office. *The committee will include no fewer than five (5) UAMS Graduate Faculty members, one of whom will be designated as DAC chair (Primary Advisor). By the program completing*

the application for outside dissertation committee member and submitting to the Graduate School Office for the Dean's consideration and approval, one person who is not a UAMS Graduate Faculty member may serve as a required committee member but not as chair. Biomedical Informatics Doctoral Advisory Committees (DACs) must include one member external to UAMS.

Meetings of the Doctoral Advisory Committee

After the formation of the DAC, graduate students will meet with their DAC at least once each semester (Fall and Spring only) as a prerequisite for registration in the BMIG 6800 Dissertation course for the subsequent semester. Either the student or the DAC Chair may initiate additional DAC meetings. It is recommended that the [Research Agreement](#) be used to specify additional requirements for the frequency in which meetings should occur. It is the DAC Chair's responsibility to ensure that a duly signed document attesting to a meeting is filed with the Graduate School during each semester of enrollment in BMIG 6800. The form is available [here](#). The deadline for the submission of this form is the same day that grades are due for continuing students each semester. Grade due dates can be found on the graduate school's [academic calendar](#). The DAC Chair is required to report an incomplete if the form isn't submitted by the deadline. In accordance with the [graduate catalog's](#) policies on grading, the incomplete will become an "F" if not changed by the following semester in which the student enrolls.

The purpose of these meetings is to review the student's progress toward the degree, and to discuss future work. The student will prepare a written report of their research progress for these meetings and will distribute by e-mailing a copy of this report to each member of the DAC at least one week prior to the meeting. These written reports form the basis for advice by the committee as a means of evaluating progress. Students will be examined orally on this report, as well as any course work the student has completed, as it relates to research done for that semester. The reports are stored in the student's departmental file, along with the committee's review form documenting the meeting.

The DAC is responsible for monitoring the student's general background knowledge of the discipline, problem solving ability and preparation for their dissertation. After meeting with the student, the DAC will discuss their progress and make suitable recommendations for future work. These recommendations will be summarized by the DAC Chair in the form of a [Graduate Committee Report](#) and distribute to the student and the members of the DAC for inclusion in the student's file. A student's DAC must ensure that the UAMS Graduate School's eighteen (18) credit hour Dissertation (BMIG 6800) requirement for the Doctorate of philosophy is fulfilled.

Dissertation Preparation and Defense

The guidelines of the UAMS Graduate School and UAMS' Library regarding the defense must be followed. In addition, the procedures for arranging the dissertation defense begins with notification by the student of the intent to defend the dissertation. The following steps should be taken:

- 1. The doctoral candidate and the DAC Chair should actively engage all members of the DAC throughout the process of constructing the dissertation.*
- 2. Three to 4 months prior to the target date of the final dissertation defense and with approval of the DAC Chair, the student should orally present their planned dissertation defense to the DAC members. This should include a written outline with sufficient detail for evaluation.*
- 3. If the DAC approves, then the student begins writing the dissertation. It is recognized that the student may have portions of the dissertation already written. If the DAC does not approve, the DAC will recommend what must be accomplished by the student prior to writing the dissertation.*
- 4. Four (4) weeks prior to the targeted date for the final dissertation defense, the student presents the final version of the dissertation, approved by the DAC Chair, to all members of the DAC.*

5. *The DAC members read the dissertation and either approve or disapprove of the dissertation within two weeks of receiving the document. Committee members may provide additional input regarding the dissertation to the student at the dissertation defense.*
6. *If the committee approves of the dissertation, the student can proceed to scheduling and advertising the defense. If the DAC does not approve of the dissertation, the DAC will recommend what actions must be taken by the student prior to approval of the dissertation.*
7. *Immediately following the public presentation of the dissertation, the DAC will meet with the student to discuss the dissertation and presentation. The DAC will then vote on the acceptability of the defense, and complete any required documents associated therewith. The student will be notified of the results of these deliberations immediately following the DAC meeting that concludes this final dissertation defense. In preparation for the vote, students should bring a hardcopy of the [Final Defense Form](#) to the defense. This documentation will be forwarded to the Graduate School by the student with copies to the DAC Chair for inclusion in the student's file. The UAMS Graduate School requires approval by eighty percent (80%) of the committee membership for successful defense.*

Guidance Setting Up a Dissertation Defense

- *Obtain the cell phone numbers for all committee members.*
- *Send reminders to all committee members the day before the defense.*
- *Each committee member should schedule at least 3 hours for the defense.*
- *The room should be booked for at least 3 hours and should include set up and break down time.*
- *If there are committee members dialing in and you plan to use WebEx, please remember that the DBMI WebEx allows only **ONE** call at a time. If the WebEx or Blackboard Collaborate isn't available for at least 2 hours, you need to think about another conference system (Skype, Free Conference, etc.)*
- *If there are committee members dialing in, have them conduct a test call at least 15 minutes prior to start time.*
- *If you are using the computer of a project manager or someone else who is neither the student nor a committee member, ensure that there is a second computer with the slides for the committee-only discussions.*

Expectations of Dissertations

- *A dissertation is written in the style of a scientific paper, preferably the manuscript could be ready to submit for publication. This includes an Introduction, Materials and Methods, Results, and Discussion, and References. On average, a dissertation at UAMS is about 100 pages, although the length can vary. It is important that a full, complete story is told in the format specified above. The dissertation should also follow the formatting guidelines for [UAMS Thesis and Dissertation](#).*
- *The dissertation is a work of original research or scholarship which generates new knowledge and indicates a mastery methods and/or tools in or related to the field of biomedical informatics.*
- *The dissertation should provide an indication of a student's ability to address a major intellectual problem and arrive at an effective solution.*
- *The dissertation topic should be selected by the student with consultation with all members of the DAC, preferably early in the process (at the beginning of the semester/immediately following the formulation of the DAC)*
- *The student should communicate regularly with all members of the DAC.*
- *The [Research Agreement](#) should be used as the first tool for coordinating the dissertation requirements with the DAC.*
- *The content of the dissertation should be presented logically and lucidly. Jargon should be avoided, and comprehension should be clearly demonstrated.*

- *The final dissertation defense should be scheduled at least 4 weeks before a student's anticipated graduation ceremony and should align with the UAMS' Library's Submission deadline which is available in the current year's Graduate School calendar.*

Publication Requirement. *Each doctoral student is required to draft a minimum of 3 scholarly papers of sufficient quality to publish in peer-reviewed journals, indexed for academic retrieval, during their tenure in the DBMI program. Unless there are extenuating circumstances such as outstanding patents or intellectual property concerns, the expectation is that the manuscripts be published. The student must be a first author on at least one of these papers. For doctoral students with the goal of a research position or a tenure track position in academia, the number of publications should be higher.*

Notification of Dissertation Defense. After a student presents a written dissertation to the Doctoral Advisory Committee, the committee chair (with the concurrence of the committee) will schedule a dissertation defense. Not less than thirty days prior to the date of the dissertation defense, the program should notify the Graduate School and post public notices announcing the title of the dissertation, and the date, time and place of the defense. The Graduate School website will be the official posting mechanism for the thirty day public announcement for all Ph. D. dissertation defenses.

Approval of Dissertation. Approval of 80% of the Doctoral Advisory Committee is required for acceptance of the dissertation.

Dissertation on File. Three final copies of the dissertation, together with three copies of an abstract of not more than 350 words, must be submitted to the library for approval no less than ten class days before the degree is conferred. All signatures on the final copies and abstracts must be original, and the three copies must be submitted unbound. After approval two copies are retained by the UAMS Library. The dissertation must be submitted in accordance with the guidelines contained in a manual, Regulations for Preparing Theses and Dissertations, which is available in the UAMS Bookstore and on the Graduate School website.

Verification of Dissertation Acceptance. A copy of the dissertation title page and committee signature page must be submitted to the Office of the University Registrar prior to the conferring of the degree. The committee signature page must have verification by the UAMS Library that the dissertation has been accepted.

Graduation Application. A graduation application form must be submitted to the Office of the University Registrar and a graduation fee paid during registration for the semester in which degree requirements will be completed and graduation projected. If a student fails to complete the degree requirements on the projected date, the program must contact the Graduate School and the Office of the University Registrar. The student must contact the UAMS Graduate School and the Office of the University Registrar concerning their projected graduation date.

Campus Clearance. The Office of the University Registrar will submit a roster of graduates to departments requiring clearance of students, for each semester/session. The student will be notified by mail if there are departments to clear. The Office of the University Registrar will not issue any diploma and/or requested transcripts for graduates who are not cleared by these departments.

Grades and Transcripts Withheld. Grades and transcripts will be withheld and registration refused to students who fail to return laboratory, library or other university property entrusted to their care; who fail

to 39 complete the campus clearance procedure; who fail to comply with rules governing the audit of student organization accounts; or who have failed to pay any fees, tuition, room and board charges, fines or other charges assessed by UAMS.

Timeline Table

Scenario	Graduate School Course
<p>Student has relevant Bachelors degree or equivalent but not a Masters degree</p>	<ol style="list-style-type: none"> 1. Initial Advisor is assigned upon program entry (guided by Program Director). 2. Initial Advisor, Department Chair, and Program Director approve transfer courses and Plan of Work (PoW). 3. Proposed Doctoral Advisory Committee (DAC) is named before the end of first semester following admission to the PhD program. Semesters include spring, summer and fall. 4. Proposed DAC evaluates adequacy of PoW to support planned doctoral research and finalizes PoW before the end of the first year in the doctoral program. 5. The student must advance to Candidacy by the end of the second year of the doctoral program (1.5 years preferred). 6. There is a seven-year maximum time limit for completion of the PhD. The time period starts after the student has advanced to candidacy. The doctoral degree is awarded to students who complete a minimum of 72 graduate semester credit hours beyond the bachelor’s degree as required by the Arkansas Department of Higher Education (ADHE). Students with no previous graduate credit will be required to complete additional hours beyond the 55 credit hour minimum that are required for the degree to fulfill the ADHE requirement.
<p>Student has completed Masters Coursework or completed a Masters degree from the UAMS Biomedical Informatics Graduate Program</p>	<ol style="list-style-type: none"> 1. Initial Advisor is assigned upon program entry(guided by Program Director). 2. Initial Advisor, Department Chair, and Program Director approve transfer courses and Plan of Work (PoW) 3. Proposed Doctoral Advisory Committee (DAC) is named before the end of first semester following admission to the PhD program. Semesters include spring, summer and fall. 4. Proposed DAC evaluates adequacy of Plan of Work (PoW) to support planned doctoral research and finalizes PoW before the end of the first year in the doctoral program. 5. The student must advance to Candidacy by the end of the second year of the doctoral program (1.5 years preferred). 6. There is a seven-year maximum time limit for completion of the PhD. The time period starts after the student has advanced to candidacy.

<p>Student has a relevant Masters degree</p>	<ol style="list-style-type: none"> 1. Initial Advisor is assigned upon program entry (guided by Program Director). 2. Initial Advisor, Department Chair, and Program Director approve transfer courses and Plan of Work (PoW). 3. Proposed Doctoral Advisory Committee (DAC) is named before the end of first semester following admission to the PhD program. Semesters include spring, summer and fall. 4. Proposed DAC evaluates equivalency of prior coursework and adequacy of PoW to support planned doctoral research and finalizes PoW before the end of the first year in the doctoral program. 5. The student must advance to Candidacy by the end of the third year of the doctoral program (2 years preferred). 6. There is a seven-year maximum time limit for completion of the PhD. The time period starts after the student has advanced to candidacy.
<p>Student has a Masters or other advanced degree in an area not directly relevant to Biomedical Informatics</p>	<ol style="list-style-type: none"> 1. Initial Advisor is assigned upon program entry (guided by Program Director). 2. Initial Advisor, Department Chair, and Program Director approve transfer courses and initial Plan of Work (PoW). 3. Proposed Doctoral Advisory Committee (DAC) is named before the end of fourth semester following admission to the PhD program. Semesters include spring, summer and fall. 4. Proposed DAC evaluates equivalency of prior coursework and adequacy of PoW to support planned doctoral research and finalizes PoW before the end of the fifth semester in the doctoral program. 5. The student must advance to Candidacy by the end of the fourth year of the doctoral program (2 years preferred). 6. There is a seven year maximum time limit for completion of the PhD. The time period starts after the student has advanced to candidacy.

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES
GRADUATE SCHOOL

Thesis Advisory Committee

Per the guidelines contained in the UAMS Graduate Student Handbook and the UAMS Graduate School Catalog for awarding the Masters of Science degree, the faculty members listed below are designated to serve as the Thesis Advisory Committee for_____.

Program:_____

Please print/type name of major graduate advisor_____.

(Please Print/Type names of Thesis Advisory Committee and graduate program affiliation):

Date _____ Signed _____
Student

Date _____ Signed _____
Advisor

Date _____ Signed _____
Graduate Program Coordinator

Date _____ Reviewed _____
Dean of the Graduate School

MASTER OF SCIENCE DEGREE REQUIREMENTS

Listed below are the requirements of the UAMS Graduate School for the awarding of the Master of Science. Individual graduate programs may have additional program specific requirements for the awarding of the degree. *Requirements specific for the Graduate Program in Biomedical Informatics are in italics and in the table.*

Initial Advisor. *The program director serves as the initial advisor for all entering students during the first year. The Program Director will work with the Student and appoint a faculty advisor during the second semester of the first year. The faculty advisor will advise the student beginning at Semester 3 until the Thesis Advisory Committee (TAC) has been formed. The initial advisor is responsible for Individual Development Plan (IDP) and Plan of Work (POW) finalization with the student during the first semester and required semester updates to the IDP and POW. The Declaration of Advisor Form can be used after the first semester to change advisors.*

Time Frame and GPA Required for Completion of Degree. All requirements for a master's degree must be satisfied within six consecutive calendar years from the date of the first registration.

Interprofessional Education (IPE) Requirement: The Graduate School requires all students who have entered a MS or PhD program from Fall 2015 and beyond to complete the Exposure phase of the IPE curriculum prior to graduation. However, students are encouraged to attend other IPE activities as well. The Exposure phase requires participation in 2 activities.

- The IPE Exposure workshop (Generally hosted during New Student Orientation each Fall).
- An Exposure Bridge Activity. Activities include movies, book readings, and observations. A list of these activities can be found [here](#). Registration is required for some activities.

Grade Point Average and Semester Credit Hours. *A minimum cumulative GPA of 3.0 on all coursework is required for completion of a degree for students in the biomedical informatics program. If a student is submitting a thesis, the student must register for a minimum of six (6) semester credit hours of thesis. When a thesis is completed a letter grade will be reported for six (6) hours of thesis regardless of the total number of thesis hours for which the student registered.*

Non Thesis (Professional Master's) Option. A comprehensive examination is required for students enrolled in a program's non-thesis option. The format of the examination is at the discretion of the program. *In biomedical informatics, students pursuing this option will complete a 3 - 6 hour capstone project in the BMIG 5801 Capstone Course to fulfill the requirement of the examination.* Immediately following successful completion of the examination, the program will submit to the Graduate School Office a written statement indicating that the student passed the examination and that all program degree requirements have been completed. *This option is highly recommended for students pursuing a career outside of academia and research.*

Thesis Option. A comprehensive examination and public thesis defense are required for students submitting a thesis; the format of the examination is at the discretion of the program. *In biomedical informatics, students pursuing this option will complete a scientific paper,*

preferably the manuscript should be ready to submit for publication. The manuscript should include an Introduction, Materials and Methods, Results, Discussion, and Reference sections.

This option is highly recommended for students pursuing a career in academia.

A TAC must be formed by the student during the semester before a student intends to enroll in BMIG 5800 Thesis. The committee will include no fewer than five (5) UAMS Graduate Faculty members, one of whom will be designated as TAC Chair (Primary Advisor). Of this five, one person who is not a UAMS Graduate Faculty member may serve as a required committee member but not as chair. At the time the committee is appointed, notification of the committee membership must be forwarded to the Graduate School Office by the student. The UAMS Thesis Advisory Committee Form can be found [here](#). After a student presents a written thesis to the TAC, the TAC Chair (with the concurrence of the committee) will schedule a thesis defense. Not less than ten days prior to the date of the thesis defense, public notices will be posted by the program announcing the title of the thesis, and the date, time and place of the defense. Additionally, The TAC Chair will send an email notification to all faculty in the Department of Biomedical Informatics at least 10 business days before the defense. Two copies of the thesis must be submitted to the library for approval no less than ten class days before the degree is conferred. All signatures on the final copies must be original, and two copies must be submitted unbound. After approval the UAMS library retains two copies.

Meetings of the Thesis Advisory Committee

After the formation of the TAC, graduate students will meet with their TAC at least once each semester (Fall and Spring only) as a prerequisite for registration in BMIG 5800 Thesis for the subsequent semester. Either the student or the TAC Chair may initiate additional TAC meetings. It is recommended that the Research Agreement be used to specify additional requirements for the frequency in which meetings should occur. It is the TAC Chair's responsibility to ensure that a duly signed document attesting to a meeting is filed with the Graduate School during each semester of enrollment in BMIG 5800. The form is available [here](#). The deadline for the submission of this form is the same day that grades are due for continuing students each semester. Grade due dates can be found on the graduate school's [academic calendar](#). The TAC Chair is required to report an incomplete if the form isn't submitted by the deadline. In accordance with the [graduate catalog's](#) policies on grading, the incomplete will become an "F" if not changed by the following semester.

The purpose of these meetings is to review the student's progress toward the degree, and to discuss future work. The student will prepare a written report of their research progress for these meetings and will distribute by e-mailing a copy of this report to each member of the TAC at least one week prior to the meeting. These written reports form the basis for advice by the committee as a means of evaluating progress. Students will be examined orally on this report, as well as any course work the student has completed, as it relates to research done for that semester. The reports are stored in the student's departmental file, along with the committee's review form documenting the meeting.

The TAC also guides students with regard to selecting courses and progressing toward fulfillment of other requirements of the Graduate School and the Department of Biomedical Informatics. The TAC is responsible for monitoring the student's general background knowledge of the discipline, problem solving ability and preparation for their thesis. After meeting with the student, the TAC will discuss their progress and make suitable recommendations for future work. These recommendations will be summarized by the TAC Chair in the form of a [Graduate Committee Report](#) and distribute to the student and the members of

the TAC for inclusion in the student's file. A student's TAC must ensure that the UAMS Graduate School's six (6) credit hour thesis (BMIG 5800 Thesis) requirement for the Master of Science is fulfilled.

Thesis Preparation and Defense

The guidelines of the UAMS Graduate School and UAMS' Library regarding the defense must be followed. In addition, the procedures for arranging the thesis defense begins with notification by the student of the intent to defend the thesis. The following steps should be taken:

- 1. Three to 4 months prior to the target date for the thesis defense and with approval of the TAC Chair, the student should orally present their planned thesis defense to the TAC members. This should include a written outline with sufficient detail for evaluation.*
- 2. If the TAC approves, then the student begins writing the thesis. It is recognized that the student may have portions of the thesis already written. If the TAC does not approve, the TAC will recommend what must be accomplished by the student prior to writing the thesis.*
- 3. Four (4) weeks prior to the targeted date for the thesis defense, the student presents the final version of the thesis, approved by the TAC Chair, to the TAC.*
- 4. The TAC members read the thesis and either approve or disapprove of the thesis within two weeks of receiving the document. Committee members may provide additional input regarding the thesis to the student at the thesis defense.*
- 5. If the committee approves of the thesis, the student can proceed to scheduling and advertising the defense. If the TAC does not approve of the thesis, the TAC will recommend what actions must be taken by the student prior to approval of the thesis.*
- 6. Immediately following the public presentation of the thesis, the TAC will meet with the student to discuss the thesis and presentation. The TAC will then vote on the acceptability of the defense, and complete any required documents associated therewith. The student will be notified of the results of these deliberations immediately following the TAC meeting. In preparation for the vote, students should bring a hardcopy of the [Thesis Exam Form](#) to the defense. This documentation will be forwarded to the Graduate School by the student with copies to the TAC Chair for inclusion in the student's file. Approval by the TAC will require the concurrence of the committee with no more than one dissenting vote. The UAMS Graduate School requires approval by eighty percent (80%) of the committee membership for successful defense.*

Guidance Setting Up a Thesis Defense

- Obtain the cell phone numbers for all committee members.*
- Send reminders to all committee members the day before the defense.*
- Each committee member should schedule at least 2 hours for the defense.*
- The room should be booked for at least 2 hours and should include set up and break down time.*
- If there are committee members dialing in and you plan to use WebEx, please remember that the DBMI WebEx allows only **ONE** call at a time. If the WebEx or Blackboard Collaborate isn't available for at least 2 hours, you need to think about another conference system (Skype, Free Conference, etc.)*
- If there are committee members dialing in, have them conduct a test call at least 15 minutes prior to start time.*
- If you are using the computer of a project manager or someone else who is neither the student nor a committee member, ensure that there is a second computer with the slides for the committee-only discussions.*

Expectations of Thesis

- *A master's thesis is written in the style of a scientific paper, preferably the manuscript could be ready to submit for publication. This includes an Introduction, Materials and Methods, Results, and Discussion, and References. On average, a thesis at UAMS is about 30-40 pages, although the length can vary. It is important that a full, complete story is told in the format specified above. The thesis should also follow the formatting guidelines for [UAMS Thesis and Dissertations](#).*
- *The thesis is a work of original research or scholarship which makes a contribution to existing knowledge and indicates a mastery methods and/or tools in or related to the field of biomedical informatics.*
- *The thesis should provide an indication of a student's ability to address a major intellectual problem and arrive at an effective solution.*
- *The thesis topic should be selected by the student with consultation with all members of the TAC, preferably early in the process (at the beginning of the semester/immediately following the formulation of the TAC)*
- *The content of the thesis should be presented logically and lucidly. Jargon should be avoided, and comprehension should be clearly demonstrated.*
- *The student should communicate regularly with all members of the TAC.*
- *The [Research Agreement](#) should be used as the first tool for coordinating the thesis requirements with the TAC.*
- *The Thesis defense should be scheduled at least 4 weeks before a student's anticipated graduation ceremony and should align with the UAMS' Library's Submission deadline which is available in the current year's Graduate School calendar.*

Graduation Application. A [graduation application form](#) must be submitted to the Office of the University Registrar and a graduation fee paid during registration for the semester in which degree requirements will be completed and graduation projected. If a student fails to complete the degree requirements on the projected date, the program must contact the Graduate School and the Office of the University Registrar. The student must contact the UAMS Graduate School and the Office of the University Registrar concerning their projected graduation date.

Graduation and Campus Clearance. Graduation clearance requirements for Graduate School students are listed [here](#). All students should log-in to GUS and review the Student Center section of GUS for any clearance items that they should complete. Please click on each item for instructions on how to clear that item and which department they should contact regarding the item. The Office of University Registrar will not be able to assist in clearing items.

Grades and Transcripts Withheld. Grades and transcripts will be withheld and registration refused to students who fail to return laboratory, library or other university property entrusted to their care; who fail to complete the campus clearance procedure; who fail to comply with rules governing the audit of student organization accounts; or who have failed to pay any fees, tuition, room and board charges, fines or other charges assessed by UAMS

THE INDIVIDUAL DEVELOPMENT PLAN

In 2005, Sigma Xi conducted a multi-campus survey of postdoctoral scholars in the US. The findings of that study underscore the value of the INDIVIDUAL DEVELOPMENT PLAN (IDP) for academics. This survey showed that postdocs who reported the highest degree of oversight and professional development were more satisfied with their progress, had fewer conflicts with their advisors, and gave their advisors higher overall ratings. The use of an IDP early in their career was found to translate to:

- A 23% advantage in submission of manuscripts to peer-reviewed journals
- Publication as primary author at a 30% rate than those without an IDP
- Submit their own grants at a 25% higher rate
- Are 25% less likely to report that their advisors did not meet their initial expectations

The creation of an IDP – at any level of professional development – entails a straightforward series of steps that begins with **SELF- ASSESSMENT**. You may choose to use a formal assessment tool, but whether you do that or choose a different method, you need to think about **AND WRITE DOWN** the following:

- └ Assess your skills including your strengths and those areas that you need or would like to develop
 - Research/experimental skills
 - Technical skills
 - Professional skills
 - Interpersonal skills
 - Leadership skills
- *Be realistic and honest in evaluating your current abilities – this is a critical aspect of your career planning. Don't rely only on yourself, but ask family, friends and colleagues what they see as your strengths and those areas where you could use development
- └ Assess your current career goals:
 - what interests you?
 - What aspect of your field do you most want to work in?
 - What are your scholarly goals for this year/term?
 - └ Assess your long-term goals (3 yrs, 5 yrs)
 - What type of work do you want to be doing?
 - Where would you like to be professionally?
 - Do you wish to remain in academia?
 - Would you like a position in industry? If so, what type of industry?
 - What are your career goals?

Once you have completed your self-assessment, it is time to **assess the opportunities** that exist. In many instances, this may best be accomplished in discussion with your advisors, but you should also explore options available in your institution, surrounding area, and department on your own by talking with colleagues and peers. Still in the planning stages, you now need to match the areas you identified as developmental goals to the opportunities available:

- └ Given your career goals, identify those skills that best meet your developmental needs
- └ Identify career opportunities that best benefit your career goals: current, 3 yr, 5 yr
- └ Prioritize your developmental areas and create a plan for addressing them

It is now time to sit down and write out your IDP. For this, we have provided a template. Your IDP maps out a path toward your career goals that helps you to match current strengths and skills, those you

need/want to develop, and the time course over which you expect to accomplish them. The aim is to build on your current strengths and skills by identifying areas of development and ways in which they can be addressed. Specifically, the IDP should:

- └ Establish milestones: dates for completion of specific training goals
 - └ Provide ‘check points’: places where specific professional goals can be used to ‘test’ your development goals (e.g. presenting at a national conference or submitting a manuscript for publication)
- └ Define approaches to obtain skills
 - └ Keep in mind that this is a living document – change and update as often as needed to keep it relevant to your career trajectory
 - └ Identify each goal and note specific and achievable methods to meet that goal that are specific, measurable and time limited – identify milestones that are clear and can be used to determine when your goal has been met

INDIVIDUAL DEVELOPMENT PLAN FORM

Name:		Date:	
SKILLS ASSESSMENT		PERIOD COVERED	
Strengths		Development Needs	
GOALS			
Short-term goals to be completed by			
Skill to be gained	Method of achievement	Est complete	Completed
Long-term goals to be completed by			
Skill to be gained	Method of achievement	Est complete	Completed

University of Arkansas for Medical Sciences
 Graduate Program in Biomedical Informatics
STUDENT CONDUCT FORM

Building:		Incident Date:		Day of Week:	Monday	Semester/Year:	
Time:		Floor:		Locations/Room#:			
Campus Security Notified?:		Yes	No	Respondent(s):			

Submitted by:		Title:		Phone:		Page	1	of	2
Signature (only if printing):						Date:			

Individuals involved including: Accused (A), Witness (W), or Victim (V)*:

Name	Check One*					Student ID#	Phone
1	A	W	V				
2	A	W	V				
3	A	W	V				
4	A	W	V				
5	A	W	V				
6	A	W	V				
7	A	W	V				
8	A	W	V				
9	A	W	V				
10	A	W	V	<input type="checkbox"/>			

Do not fill in below this line. For office use only.

Date Received:	
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Alleged Violation(s) and Student Handbook Page # - if applicable:

Action Taken:

<input type="checkbox"/> No Action Taken (Placed in Student's File)	<input type="checkbox"/> Informal Meeting between Student and the Student's Advisor.	<input type="checkbox"/> Referred to Vice Chair for Academic Programs	<input type="checkbox"/> Referred to Department Chair of Biomedical Informatics	<input type="checkbox"/> Referred to Dean of Graduate School
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 Print Name (Person submitting this form)

 Signature (Person submitting this form)

 Date

Incident Description: Provide factual information.

A large, empty rectangular box with a thin black border, intended for providing factual information about an incident. The box is currently blank.

Expectations of Students and Faculty

Communication:

Course instructors and students will communicate using UAMS email. This includes important updates about the program, course assignments and meetings. Students and Faculty are responsible for all communication sent to their UAMS email and should regularly check UAMS email.

UAMS uses a 550 MB email box size limit. To prevent loss of ability to send and receive email, you will need to keep your inbox volume relatively low through options such as (1) deleting your deleted emails, (2) archiving or deleting your sent emails, and (3) using an archive for emails from your inbox to sent that you wish to keep.

Students and Faculty should expect a 24-hour response time to email communication. In cases where this is not possible such as personal time off, extended travel or limited access to internet, we recommend prior notice as well as use of an out of office email alert that lists an alternate contact.

Basic computer literacy requirements:

Most courses in the GPBMI require that you:

1. use a computer to access the course materials in BlackBoard, a course management system.
2. upload and download files, chat, and post comments to forums in Blackboard.
3. perform such tasks as word processing, use of spreadsheets, database and presentation software
4. access Web connections using a browser, and have an ability to navigate websites.
5. download, install, and use software as part of course assignments.
6. meet with faculty and other students electronically throughout the semester using such electronic means as email, GoToMeeting, or Skype.
7. Remotely access and use shared computer space including high performance computers on the UAMS network or other locations (depending on course or project requirements).
8. Navigate computer directory structures

All students are expected to possess these skills upon entry to the program.

Computer requirements include:

- Each student must own a personal computer capable of running current versions of common web browsers and office productivity software.
- You should have the latest version of your operating system installed including latest security updates and service packs.
- Courses may also require:
 - Webcam for proctoring of online quizzes and exams

- Headsets with microphones for voice chatting

Availability and Accessibility of Course Materials

Course materials including lectures, assignments, quizzes and exams will be available through BlackBoard. Except in the case of technology or user failure, lectures will be recorded and available via BlackBoard via live streaming and after-the-fact viewing of the recording. To maintain quality for those viewing recorded lectures, the instructor may need to (1) repeat student questions and comments so that they are audible on the recording, or (2) take and post photos of diagrams drawn on white boards during class.

Copyrighted or otherwise protected materials such as books, journal articles, software licenses and standards will be noted in course syllabi. Students are responsible for maintaining access to required course texts and other materials listed as required in the course syllabus such as software licenses. Many journal articles are accessible through the UAMS library; course instructors will endeavor to use open access materials or materials available through the UAMS Library, but this is not possible in all cases. Access to some articles may require the student to purchase a copy.

Tracking Academic Progress

Course monitoring: Course Directors are responsible for monitoring student progress in courses. Student access of course materials is automatically tracked in BlackBoard to assist course directors in this responsibility. Students who do not regularly access course materials, turn in assignments late, or receive low scores should expect to be contacted by the course director or designee and to engage in troubleshooting and planning to get back on track.

Where this is ineffective the students advisor should be consulted. Monitoring is an attempt for early detection, intervention and collaborative problem solving to keep students progressing and in good standing. **Students are encouraged to approach course directors or their advisor as soon as they feel that their success or progress is in jeopardy.**

Program progress: Program progress is tracked through the Individual Development Plan (IDP) and Plan of Work (PoW) processes. All Masters and Doctoral students are required to have a formal IDP and PoW. Students in the Graduate Certificate program who desire admission to the Masters or Doctoral program are strongly encouraged to also maintain an IDP. Formal review and sign-off on the IDP and PoW is required each semester prior to registration for courses for the following semester. Official IDP and PoW versions are submitted to and maintained by the GPBME Education Coordinator.

Students are encouraged to maintain a current CV and NIH Biosketch.

Time commitment

Courses

A one credit hour course means one contact hour of course time during each week. The general rule of thumb is that a student should spend three hours outside of class each week for each credit hour of the class. So for a one credit hour class, you should expect to spend one hour a week engaged in course lectures or dialog with the instructor or other students and three hours outside of class on assigned activities such as reading, assignments designed to help you process the material like exercises, problems, application of new material, or discussion forum topics. Thus, a one credit hour class should take you an average of four hours a week and you should expect to spend an average of twelve hours a week on a three credit hour class. The total time will depend on your study skills and previous experience with graduate education, technology, on-line learning and BlackBoard.

DBMI courses are taught in a hybrid manner. Students can participate face-to-face in a classroom environment OR synchronously or asynchronously using distance learning methods. However, each course has a schedule that requires weekly engagement and assignments. It is not possible to do well in a course if you do not keep up. Thus, it is expected that you will access each course (in person, via live web participation or asynchronously) for the first few weeks on a daily basis and thereafter at least twice each week. As you gain experience with a course, you will be able to determine how frequently you need to access the course site to complete and submit the assignments and meet the course objectives.

BlackBoard tracks your access and activities in the course. Your course director or designee will monitor this information as an indication that you are engaged and progressing in the course. Lack of regular engagement on a course is a sign that you are having trouble and your course director or Teaching Assistant (TA) may contact you if you do not access the course regularly and make reasonable progress in the course over a period of time.

In an online class, doing things at the last minute is risky. Doing so may result in you encountering unanticipated difficulties and not having time to resolve them prior to an assignment deadline. It is your responsibility to allocate enough time to do online course activities a timely manner so they are completed on time.

Doctoral Students

If not already begun, building your academic track record starts when you start the program. Course projects, rotations, and engagement with your advisor and other trainees in his or her lab are all opportunities to gain experience in scholarly work including the research design, planning, conduct and reporting process as well as in publications and grants. Many of these opportunities will take place outside of a structured course. These opportunities build your future and are well worth every hour you put in. The more you engage and take on assignments, the more you will learn and produce. It is not possible to become a productive scientist without a natural curiosity and engagement in scientific activities.

Attachment A - Guidelines for Online Participation

Posting to the course site, such as the BlackBoard Discussion forum, is expected for introducing yourself to your class mates and as required throughout the course. Posting requires a substantive contribution to the discussion at that time. Simply saying “nice post” or “I agree” is not considered a substantive contribution. When posting, you must support your position, introduce a new topic or idea or otherwise add new content to the discussion when posting.

Active participation in the class and completion of the online activities is required. Establishing a presence electronically is important to building community in the course, getting to know each other and the instructor, and for group / peer learning.

A photo including a headshot is required for your course profile. This is done by updating your profile. Your photo is shown each time you post or email in the course. If you have problems posting your photo let us know so we can help.

Online etiquette

Use good “netiquette” such as:

- Check the discussion frequently and respond appropriately and on subject.
- Focus on one subject per message and use pertinent subject titles.
 - Capitalize words only to highlight a point or for titles – otherwise, capitalizing is generally viewed as SHOUTING at others electronically so please be courteous, professional and careful with your online interaction.
- Cite all quotes, references and sources.
- When posting a long message or post, it is generally considered courteous to warn readers at the beginning of the message that it is a lengthy post. Long posts usually more than a page in length can be attached to the post in a file.
 - It is considered rude to forward someone else’s messages without their permission or knowledge.
 - It is fine to use humor, but use it carefully; the absence of face-to-face cues can cause humor to be misinterpreted as criticism or flaming (angry, antagonistic criticism). Feel free to use emoticons such as ☺ or :) to let others know that you’re being humorous.
- Multiple exclamation points should not be used.

(These Netiquette guidelines have been loosely adopted and modified over the years from several sources including Rinaldi, A.H. The Net User Guidelines and Netiquette, Florida Atlantic University, 1994.)

Attachment B - Guidance for Setting Up a Defense (Masters or PhD)

- Try to obtain cell phone numbers for all committee members.
- Send reminders to all committee members the day before the defense.
- Each committee member should schedule at least 1.5 hours for the defense.
- The room should be booked for 1.75 hours and it should be booked from 15 minutes before the defense starts.
- If there are committee members dialing in and you plan to use WebEx please remember that the DBMI WebEx allows only ONE call at a time. So, if the WebEx isn't available for at least 1.75 (from the time 15 minutes before start), you need to think about another conference system (Skype, FreeConference, etc.)
- If there are committee members dialing in, have them conduct a test call at least 5 minutes prior to start time.
- If you are using the computer of a project manager or someone else who is neither the student nor a committee member, ensure that there is a second computer with the slides for the committee-only discussions.