

## USU Mechanical & Aerospace Engineering Department Checklist for Mechanical Engineering PhD Degree Beyond the MS Degree

Name \_\_\_\_\_ Student A# \_\_\_\_\_

1. Choose courses satisfying requirements below, and add to checklist. Course descriptions and schedules on MAE website.
2. Student reviews checklist with major professor, changes are made if needed, and student and professor sign.
3. Student and major professor discuss which faculty should serve on the supervisory committee.
4. Approved checklist submitted to MAE Graduate Academic Advisor before end of third semester.

Mechanical Engineering PhD Beyond the MS Credit Requirements (42 minimum)												
<input type="checkbox"/>	9 credits MAE coursework 6000-level, or above. Excludes MAE 6930/7930 (self-study)*, 6950, 6970/7970, 6990/7990.											
<input type="checkbox"/>	3 credits Advanced Math Supervisory committee approval required if not on approved Math list on page 2.											
<input type="checkbox"/>	30 credits MAE 7970 Dissertation Research (List credits below.) Up to 6 credits of MAE 7970 may be replaced by 3000** to 5000-level coursework, if approved by student's committee.											
List schedule of courses/credits including courses for MS option, if pursuing.												
Course	Cr	Semester	Gr	Course	Cr	Semester	Gr	Course	Cr	Semester	Gr	
USU 6900 RCR	0											
For eligible students, tuition awards are for approved Program of Study credits, and limited to 9 credits each fall and spring semesters, and for summer, if needed, up to 6 coursework credits or 3 research credits if doing final dissertation defense.												
Other Requirements												
<input type="checkbox"/>	PhD Qualifying Exam passed by end of third semester. List subject areas and dates in table on second page.											
<input type="checkbox"/>	Completion of USU 6900 and Research Scholars Certificate Program.											
<input type="checkbox"/>	Oral Research Presentation – Dissertation Proposal Defense.							Date:				
<input type="checkbox"/>	Submission of Application for Candidacy and Dissertation Proposal.							Date:				
<input type="checkbox"/>	Submit paper for publication in refereed journal prior to scheduling final defense (related to dissertation and student first author.)											
<input type="checkbox"/>	Title:			Journal:				Date Submitted:				
<input type="checkbox"/>	Successful dissertation defense. Submit dissertation to committee 4 weeks prior to scheduled defense.											

List faculty who have agreed to serve on your supervisory committee.			
Major Professor	Committee Members		Outside Member

\* Competitively graded 6930 or 7930 courses are allowed. They have an assigned room and class schedule; enrollment is open to all students who have completed the proper prerequisites; a course syllabus is given to students; and assignments and tests are competitively graded.

\*\*If research requires interdisciplinary work, MAE 7970 Dissertation Research credits may be replaced by a 3000-level different department course. Full supervisory committee approval required before registering for it. Additional 3000-level courses, approved by the committee, may be added but not replace other requirements. (Policy approved 1/11/2016)

## PhD Qualifying Exam

The Ph.D. qualifying examination consists of three subject area exams: a required mathematics area exam, and two subject area exams chosen by the student from the list below. All exams are based on undergraduate-level coursework.

- All three subject area exams must be taken on the first attempt, and a maximum of two attempts are allowed to pass the exams. All subject areas not passed on the first attempt must be retaken on the second attempt. For summer and fall admits, the first attempt will be no later than the week before the first spring semester, and for spring admits it will be no later than the week before the first fall semester.
- Passing grades must be obtained on each of the three subject area exams. A minimum grade of 80/100 is required to pass a subject area exam.
- The three subject area exams must be passed before completing three semesters (not counting summer) as a matriculated, provisionally matriculated, or matriculated-probationary Ph.D. student.
- The subject area exams are given the week before each fall and spring semesters, as necessary. Register by April 1<sup>st</sup> for the fall exam, and by October 1<sup>st</sup> for the spring exam. To register, email the MAE Graduate Academic Advisor the subject area exams you will take.
- The time limit on each subject area exam is three hours, and a maximum of two subject area exams may be taken in any one day.
- The MAE Graduate Academic Advisor is the point of contact for students' questions about the exams.

Subject Area	Based on USU Course	1 <sup>st</sup> Date Taken	Pass or Fail	2 <sup>nd</sup> Date Taken	Pass or Fail
Mathematics (required)	MATH 2210/2250				
Numerical Methods	MAE 3210				
Fluid Mechanics	MAE 3420				
Heat Transfer	MAE 3440				
Solid Mechanics	MAE 3040				
Dynamics	ENGR 2030				
Aeronautics	MAE 5500/5510				
Astronautics	MAE 5560				

### Approved Mathematics Courses

#### Fall Semester

MATH 5410 Methods of Applied Mathematics  
MATH 5760 Stochastic Processes  
MATH 6410 Ordinary Differential Equations I  
ECE 6010 Stochastic Processes in Electronic Systems

#### Spring Semester

MATH 5270 Complex Variables  
MATH 5420 Partial Differential Equations  
MATH 5460 Intro to Theory/Application of Nonlinear  
MATH 6270 Complex Variables  
MATH 6420 Partial Differential Equations I

#### Spring Semester continued

MATH 6440 Ordinary Differential Equations II  
MATH 6450 Partial Differential Equations II  
MATH 6470 Advanced Asymptotic Methods  
MATH 6610 Matrix Computations  
MATH 6620 Numerical Analysis  
MATH 6640 Optimization  
ECE 6030 Math Methods for Signals and Systems  
STAT 5200 Design of Experiments

#### Summer Semester

MAE 7560 Optimal Estimation for Aerospace Systems

Semester Graduating: \_\_\_\_\_

Applicant: \_\_\_\_\_

Signature

Date

Dept. Official: \_\_\_\_\_

Major Professor: \_\_\_\_\_

Signature

Date

Signature

Date