

GRADUATE STUDENT HANDBOOK

Policies and Procedures for Graduate Studies

School of Forestry
Northern Arizona University

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CHAPTER 1 – INTRODUCTION

This handbook applies to all Master of Science, Master of Forestry, and Ph.D. students in the School of Forestry admitted for the Fall 2016 semester or later. Students admitted prior to this semester have the option of continuing under the previous requirements or these requirements.

The Graduate Student Handbook summarizes the requirements and responsibilities of faculty and graduate students in the School of Forestry at Northern Arizona University. It provides students and faculty with information needed to successfully complete or direct graduate programs. Detailed information regarding general Graduate College requirements is available in the on-line Graduate catalog (<http://catalog.nau.edu/>) and on the Graduate College website (<http://nau.edu/gradcol/>). Some of the information presented in those documents is duplicated here for clarity. The Graduate College has final authority on all policy matters. Changes in Graduate College policy usually automatically change School of Forestry policies and procedures.

It is the student's responsibility to become aware of and adhere to all policies and requirements established by the Graduate College and the School of Forestry. The final responsibility for meeting all School, Graduate College, and University requirements and deadlines rests with the student.

CHAPTER 2 - ADMISSION TO GRADUATE PROGRAMS

GENERAL ADMISSION REQUIREMENTS

A minimum grade point average of 3.0 (on a 4.0 point scale) in all college and university work is required for admission. The prospective Major Professor of an applicant may petition for admittance of a student with a lower grade point average. Such a petition must clearly explain why an exception should be granted.

No student will be admitted to either the Master's or the Ph.D. programs without a faculty member in the School of Forestry agreeing to serve as that student's Major Professor. The Major Professor must be a regular member of the School's faculty, or a Research Professor in the School of Forestry. Applicants are encouraged to contact a professor in their field of interest in the School prior to application to establish a basis for acceptance.

All applicants must take the Graduate Record Examination (GRE) and arrange for submission of their scores to the Graduate College as part of the admission application. The only exception is the Master of Forestry Accelerated Bachelor's/Master's Option, in which applicants who are already enrolled in the School of Forestry's Bachelor's of Science program do not need GRE scores for their application. The School of Forestry requires successful applicants to score in the top 40th percentile of those taking each section (verbal reasoning, quantitative reasoning, and analytic writing) of the GRE (equivalent to $\geq 60\%$ below as reported by GRE). The prospective Major Professor of an applicant may petition for admittance of a student with a lower score. Such a petition must clearly explain why an exception should be granted.

International students applying to the Master's or Ph.D. programs who lack a college degree from the United States (U.S.) must take the Test of English as a Foreign Language ([TOEFL](#)) and arrange for submission of their scores to the Graduate College as part of the admission application. The University requires a minimum TOEFL score of 80 on the Internet-based test, 213 on the computer-based test, and 550 on the paper-based test. The TOEFL is waived for the following applicants: native speakers of English; holders of a bachelor's or master's degree from a U.S. university; and holders of college or university degrees where English was the primary language of instruction. Applicants who do not achieve the minimum TOEFL score but meet other admission criteria may be admitted conditionally and required to complete the Program in Intensive English (PIE; <http://nau.edu/CAL/PIE/Program-Overview/>) in the first semester of enrollment.

ADMISSION REQUIREMENTS FOR THE MASTER OF FORESTRY (M.F.) AND MASTER OF SCIENCE (M.S.) PROGRAMS

REQUIREMENTS FOR STUDENTS WITH A BACHELOR OF SCIENCE DEGREE IN FORESTRY

Successful applicants for the Master of Forestry (M.F.) and the Master of Science in Forestry (M.S.) programs meeting all the general admission requirements detailed above, and having a Bachelor of Science degree in forestry or natural resources from a Society of American Foresters accredited program, will be admitted with regular standing.

REQUIREMENTS FOR STUDENTS WITHOUT A BACHELOR OF SCIENCE DEGREE IN FORESTRY

Successful applicants for the M.F. and the M.S. programs meeting all the general admission requirements detailed above, but not having a Bachelor of Science degree in forestry or natural resources from a Society of American Foresters accredited program, will be required to complete at least 15 semester hours of remedial coursework in forestry with an average grade of “B” or higher. The intent of these requirements is to assure that a student who graduates with a M.F. or M.S. has a breadth of knowledge in forestry. The student's Thesis Committee or Major Professor may specify additional remedial requirements.

REQUIREMENTS FOR PEACE CORPS MASTER’S INTERNATIONAL STUDENTS

In addition to the requirements outlined above, any student who applies to the Peace Corps Master’s International program must demonstrate evidence of having applied to the Peace Corps. A Peace Corps Master’s International student may apply to either the M.F. or M.S. Programs but not to the Ph.D. program.

ADMISSION REQUIREMENTS FOR THE PH.D. PROGRAM

Entrance to the Ph.D. program is contingent on a student having demonstrated competence in scientific research. A Master of Science (thesis option) serves as the standard for such demonstrated competence. Other advanced post-Baccalaureate degrees with demonstrated scientific research outputs equivalent to a Master’s thesis may qualify a student for admission. Such equivalents may include a Master’s of Arts with a thesis requirement, or a non-thesis Master’s degree with research outputs such as primary author of peer reviewed publications. Students lacking a Master’s degree or similar post-Baccalaureate degree can demonstrate competence in scientific research by having substantial research experience, such as authorship of peer-reviewed publications. Students seeking admission to the Ph.D. program should include in their applications an explicit statement of how their education and experience satisfies the intent of this requirement. Applicants for the Ph.D. program lacking a Master’s or similar post-Baccalaureate degree must meet admission requirements for grade point average in all college and university coursework, and GRE scores, with no exceptions.

REQUIREMENTS FOR STUDENTS WITH AT LEAST ONE DEGREE IN FORESTRY

Successful applicants with at least one degree in forestry from a Society of American Foresters accredited program, and who meet all other admission requirements, will be admitted with regular standing to the Ph.D. program.

REQUIREMENTS FOR STUDENTS WITHOUT AT LEAST ONE DEGREE IN FORESTRY

Successful applicants without at least one degree in forestry from a Society of American Foresters accredited program, and who meet all other admittance requirements, will be admitted with provisional standing to the Ph.D. program. These students must complete, at a minimum, 15 semester hours of remedial coursework in forestry with an average grade of "B" or higher. The student's Dissertation Committee may specify additional remedial requirements. These requirements must be successfully completed before the student can advance to Candidacy. Students become candidates for the Ph.D. degree when all required courses and written and oral exams are completed.

APPLICATION PROCEDURES

All applicants must apply directly to the [NAU Graduate College](#) by submitting the on-line Application for Admission at <http://www.applyweb.com/apply/northazg>.

Additionally, all applicants must submit the following application materials:

- A) Scores for the General section of the Graduate Record Examination (GRE):** Applicants must request Educational Testing Services (ETS) to submit official GRE scores directly to the NAU Graduate College at the address below. The only exception is the Master of Forestry Accelerated Bachelor's/Master's Option, in which applicants who are already enrolled in the School of Forestry's Bachelor's of Science program do not need GRE scores for their application.
- B) TOEFL Scores (International Students Only):** International student applicants must request Educational Testing Services (ETS) to submit official TOEFL scores directly to the NAU Graduate College at the address below.
- C) Transcripts:** Applicants must request official transcripts of all college and university work to be submitted directly to the NAU Graduate College at the address below.
- D) Statement of Research Interests and Professional/Career Goals:** Applicants must submit a detailed Statement of Intent (250 to 500 words in length) that clearly defines the applicant's educational and professional background, interests, and career objectives. An electronic copy of this statement can be attached to the online application to the Graduate College, or can be mailed to the School of Forestry at the address below.
- E) Three letters of recommendation:** Applicants must have three letters of recommendation to support their application. Applicants are encouraged to arrange for recommendations from individuals with whom they have recent familiarity. One letter of recommendation can be from the student's proposed major professor. References may submit letters of recommendation in two ways: 1) use the form entitled "Recommendation for Graduate Study" found in the appendix of this document (<http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>) and mail the form to the School of Forestry at the address below; 2) use the online

recommendation process that is part of the Graduate College's online application after the applicant provides contact information for the references.

For fall semester admissions, completed applications with all supporting documentation must be received by February 15. For spring semester admissions, completed applications with all supporting documentation must be received by October 15 of the previous year. Applications received after these dates, including those partially complete, will receive consideration only after full consideration of completed applications received by the deadline.

Addresses for submission of application materials:

Northern Arizona University
Graduate College
P.O. Box 4125
Flagstaff, AZ 86011-4125

Northern Arizona University
School of Forestry
Graduate Coordinator
P.O. Box 15018
Flagstaff, AZ 86011-5018

Additional information and application materials may be obtained via the internet and/or telephone at:

NAU Graduate College
Phone: 928-523-4349
Web: <http://nau.edu/gradcol>

NAU School of Forestry
Phone: 928-523-6666
Web: <http://nau.edu/forestry>
Email: ForestryGraduateStudies@nau.edu

CHAPTER 3 - GRADUATE STUDIES COMMITTEE

The establishment and review of School of Forestry graduate policies and procedures are the responsibility of the Graduate Studies Committee. This Committee will recommend to the faculty changes in this document when Graduate College policies change and when policies herein no longer serve the interest of the Forestry Graduate Program. The faculty must approve all policies and procedures. The Graduate Studies Committee can be a distinct committee, or can be combined with related committees in the School of Forestry, such as the Curriculum Committee, as desired by the Executive Director and Faculty.

RESPONSIBILITIES OF THE GRADUATE COORDINATOR

The Graduate Coordinator is a member of the School of Forestry faculty appointed by the Executive Director of the School of Forestry. The responsibilities of the Graduate Coordinator are:

1. Correspond with prospective School of Forestry graduate students.
2. Prepare reports and documents on graduate programs.
3. Represent the School of Forestry as necessary in relations with the Graduate College and the University Graduate Council.
4. Inform faculty in the School of Forestry of changing procedures and programs in graduate education at NAU.
5. Chair the Graduate Studies Committee.
6. Screen graduate student applications to the School of Forestry, make admission decisions, and determine if remedial coursework is required and the number of credits (Thesis/Dissertation Committee determines which courses are required).
7. Provide guidance to graduate students and faculty about graduate policies.
8. Serve as the first point of contact for graduate students wishing to discuss concerns about their graduate program or advising.
9. Others as appropriate.

RESPONSIBILITIES OF GRADUATE STUDIES COMMITTEE

1. Propose policy for graduate student responsibilities in assisting with instruction, research, and School of Forestry administration. Policy will be established by the Faculty and approved by the Executive Director of the School of Forestry.
2. Propose policy for financial support of graduate students in the School of Forestry.

3. Promote, through various media and student recruitment, those programs established above.
4. Monitor policies and programs and recommend changes as necessary to faculty of the School of Forestry and the Executive Director of the School of Forestry for approval.

CHAPTER 4 - FULFILLMENT OF REMEDIAL REQUIREMENTS

Graduate students, who have been admitted provisionally on completing remedial coursework, shall work with their committee and Major Professor to design a remedial coursework program that develops basic competency in the field of forestry. The intent of these requirements is to assure that a student who graduates with a Master of Forestry (M.F.), Master of Science in Forestry (M.S.), or Doctor of Philosophy in Forestry (Ph.D.) has a breadth of knowledge in forestry. The courses used to meet remedial requirements should be documented in the form titled "Remedial Course Plan," which is available in the appendix of this document or at <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>.

REMEDIAL COURSEWORK DISTRIBUTION

The remedial coursework will be distributed in the following three areas (adapted from the Society of American Foresters Accreditation Standards):

A. Forest Ecology and Biology

Minimum of 6 semester credit hours in the following subjects:

Topics include taxonomy, distribution, and ecological characteristics of trees and other important plants; physiology of trees, including metabolism and growth; basic and applied genetics; ecological concepts and principles, including structure and function of ecosystems; soil formation, classification, composition, and properties; silviculture, including methods of establishing and controlling the composition, growth, and quality of forest stands, including fire ecology and use of fire; water in forest ecosystems, including plant-water relationships, watershed condition and forest water quality; entomology and pathology, including the study of representative forest organisms and the application of integrated pest management; and wildlife and fish biology and ecology.

B. Management of Forest Resources, and Forest Resource Policy and Administration

Minimum of 6 semester credit hours in the following subjects:

This area of study integrates all aspects of forestry education. It provides the student with an understanding of the social, cultural, political, legal, economic, institutional, and historical influences on forestry. Topics should include policy development; administration; land and resource planning; budgeting; financial and personnel management; integrated forest resource management at stand-, system-, and landscape-scales, with consideration of wood, forage, water, wildlife, fish, recreation, cultural, educational and aesthetic benefits; forest engineering, harvesting, and utilization.

C. Measurement of Forest Resources

Minimum of 3 semester credit hours in the following subjects:

Topics include land measurement, geographic information systems, photogrammetry and remote sensing; sampling theory and methods; measurement of trees, forests, and forest

products; wildlife habitat assessment; measurement of water yields and quality; assessment of air quality and of the aesthetic, cultural, mineral, range, recreation, and wilderness values of forests.

NAU COURSES SATISFYING REMEDIAL COURSEWORK REQUIREMENT

The following courses offered at NAU satisfy the remedial coursework requirement in the distribution categories as described.

A. Forest Ecology and Biology

FOR 212	Trees and Forests of North America.....	2
FOR 213	Ecology and Management of Forest Soils	3
FOR 220	Introduction to Forest and Range Plants.....	2
FOR 240	Introduction to Conservation Biology	3
FOR 255	International Wildlife Issues	3
FOR 251	Introduction to Wildland Fire.....	3
FOR 313/314	Forest Ecology I and II	7
FOR 340	Environmental Hydrology	3
FOR 381	Forest Ecosystem Management	3
FOR 382	Ecological Restoration Principles	3
FOR 447	Human-Forest Interactions from Community Perspective.....	3
FOR 452	Forest Pathology	3
FOR 453	Forest Insects	3
FOR 454	Forest Health.....	3
FOR 479	Ecosystems and Climate Change	3
FOR 500	Ecosystem Science and Management Principles	3
FOR 504	Forest Wildlife Ecology and Management	3
FOR 521	Forest Soils.....	3
FOR 543	Ecology and Management of Introduced Species.....	3
FOR 544	Landscape Ecology	3
FOR 545	Rangeland Ecology and Management.....	3
FOR 550	Forest Tree Ecophysiology	3
FOR 552	Forest Tree Diseases	3
FOR 553	Forest Entomology.....	3
FOR 554	Integrated Forest Health.....	3
FOR 560	Wetland Ecology and Management.....	3
FOR 563	Watershed Hydrology	3
FOR 580	Ecological Restoration Principles	3

B. Management of Forest Resources, and Forest Resource Policy and Administration

FOR 230	Multicultural Perspectives Env. Management.....	3
FOR 283	Forestry in the Wildland-Urban Interface.....	3
FOR 315	Silviculture I.....	3
FOR 319	Forest Operations.....	2

FOR 323/5	Forest Management.....	11
FOR 351	Fire Monitoring and Modeling.....	3
FOR 360	Natural Resources Policy.....	3
FOR 381	Forest Ecosystem Management.....	3
FOR 382	Ecological Restoration Applications.....	3
FOR 412	Silviculture II.....	3
FOR 415	Forestry in Developing Countries.....	2
FOR 445	Wilderness Management.....	3
FOR 465	Watershed Restoration.....	3
FOR 493	Natural Resource Economics.....	3
FOR 500	Ecosystem Science and Management Principles.....	3
FOR 510	Multiple Resources Silviculture.....	3
FOR 515	Forestry in Developing Countries.....	2
FOR 504	Forest Wildlife Ecology and Management.....	3
FOR 520	Applied Forest Stand Dynamics.....	3
FOR 543	Ecology and Management of Introduced Species.....	3
FOR 545	Rangeland Ecology and Management.....	3
FOR 551	Fire Ecology and Management:.....	3
FOR 560	Wetland Ecology and Management.....	3
FOR 573	Human Dimensions of Natural Resource Management.....	3
FOR 582	Ecological Restoration Applications.....	3
FOR 590	Economic and Social Issues in Forest Recreation Development.....	3
FOR 593	Natural Resources Economics.....	3

C. Measurement of Forest Resources

FOR 211	Forest Mapping and Measurement.....	3
FOR 225	GIS Tools in Forestry.....	2
FOR 525	GIS and Spatial Techniques in Forestry.....	3
GSP 320	Introduction to Remote Sensing.....	4
GSP 423	Advanced Remote Sensing Techniques II.....	4
GSP433	Spatial Analysis and GIS Applications.....	4
STA 575	Applied Sampling.....	3

SPECIAL CONSIDERATION

The Thesis (M.S. students) or Dissertation (Ph.D. students) Committee, or Major Professor (M.F. students) must approve the use of other NAU forestry courses for meeting remedial requirements. Other NAU courses that meet the intent of the remedial requirements will also be considered with approval of Thesis (M.S. students) or Dissertation (Ph.D. students) Committee, or Major Professor (M.F. students).

REMEDIAL COURSEWORK AND DEGREE REQUIREMENTS

No course taken to meet degree requirements may be used to fulfill the remedial coursework requirement. No course that constitutes part of the maximum of 24 semester credit hours allowed as transfer units into the Ph.D. program may be used to fulfill the remedial coursework requirement.

TRANSFER COURSES SATISFYING REMEDIAL COURSEWORK REQUIREMENT

Transfer courses may be used to satisfy remedial coursework requirements if they meet the spirit and intent of the above described remedial coursework distribution areas. Any transfer course must have significant forestry content and must be analogous to a course that fulfills an upper division requirement of a professional forestry program. The use of transfer courses in a remedial coursework program must still adhere to the distribution requirements.

The student's Thesis (M.S. students) or Dissertation (Ph.D. students) Committee or Major Professor (M.F. students) must approve all transfer courses.

Coursework from a Society of American Foresters accredited forestry or natural resources program clearly satisfies the spirit and intent of the remedial coursework requirement, and should be placed in the appropriate distribution category in the remedial coursework program. Courses taken at universities outside the United States may be used as transfer courses to meet remedial coursework requirements as long as they meet the spirit and intent of remedial coursework requirements.

Students who have completed Peace Corps training in forestry may count this training as nine semester credit hours towards the remedial coursework requirement upon presentation of the necessary documents and with approval of the Major Professor. The remaining six semester credit hours of remedial work must include coursework in Area B (Management of Forest Resources and Forest Resource Policy and Administration) and Area C (Measurement of Forest Resources).

MAJOR PROFESSOR AND THESIS AND DISSERTATION COMMITTEE RESPONSIBILITIES

The Major Professor and Thesis or Dissertation Committee are expected to thoroughly evaluate the student's academic capabilities and preparation in order to develop the student's remedial coursework requirements. The 15 semester credit hours are a minimum requirement, and the Major Professor and Committee should decide if this requirement is sufficient. The Major Professor and Committee will develop with the student a recommended program that meets the student's remedial coursework requirements. The Major Professor and Committee shall review any transfer courses to be used to satisfy remedial coursework requirements to insure that they meet the spirit and intent of the above described competency areas.

The student's Program of Study submitted during the first semester of residence must include all required remedial coursework. After approval by the Major Professor (M.F. students), Thesis Committee (M.S. students), or Dissertation Committee (Ph.D. students), the Program of Study form and the Remedial Course Plan form (appendix of this document, or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>) must be submitted to the Graduate Coordinator for review prior to submission to the Executive Director of the School of Forestry for approval.

GRADUATE COORDINATOR AND GRADUATE STUDIES COMMITTEE

RESPONSIBILITIES

The School of Forestry Graduate Coordinator and Graduate Studies Committee will revisit the courses specified as fulfilling remedial coursework requirements on a regular basis, and review new courses and special offerings to help determine where they fit in remedial coursework categories. The Graduate Coordinator will review all Program of Study and Remedial Course Plan forms. The Graduate Coordinator will forward Programs of Study that clearly meet the spirit and intent of remedial requirements to the Executive Director of the School of Forestry for approval. Approved Programs of Study will be forwarded to the Graduate College by the Graduate Coordinator. Programs of Study that do not clearly meet the spirit and intent of remedial requirements will be returned to the student for revision.

CHAPTER 5 - MASTER OF SCIENCE IN FORESTRY (THESIS OPTION)

THESIS COMMITTEE ESTABLISHMENT

The Graduate Coordinator will recommend to the Executive Director of the School of Forestry one member of the School of Forestry tenure-track faculty, or a Research Professor working full time in the School of Forestry, to serve as the student's Major Professor. The Major Professor, in conjunction with the student, will recommend members of the Thesis Committee to the Graduate Coordinator. Thesis committees must include at least three members who have earned terminal degrees in Forestry, or a related field of study, and have expertise relevant to the thesis. In addition to the Major Professor, at least one member of the Thesis Committee must be faculty, adjunct faculty, or research faculty in the School of Forestry. The third (and other additional members) of the Thesis Committee are typically faculty, adjunct faculty, or research faculty at NAU or at other colleges and universities, but also may include non-university scientists and specialists, such as researchers with governmental agencies or non-governmental organizations. Participation on a Thesis Committee by a person who is not faculty, adjunct faculty, or research faculty at NAU must be approved by the Graduate Coordinator using the Approval of Outside-NAU Master of Science Thesis Committee Member Form (Appendix, or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>), which requires attachment of the committee member's vita. Adjunct faculty may serve as members of the Thesis Committee, but not as the Major Professor.

The Executive Director of the School of Forestry must approve the Major Professor and Thesis Committee. Once a committee has been established, faculty who retire may continue to serve on the thesis committee. The Thesis Committee should be established during the first semester that a student begins coursework.

For NAU graduate school policies about theses, visit:
<https://policy.nau.edu/policy/policy.aspx?num=100806>

THESIS COMMITTEE RESPONSIBILITIES

The Thesis Committee has the following responsibilities:

1. To thoroughly evaluate the student's academic capabilities and preparation in order to develop the student's coursework requirements.
2. Approve the nature and scope of the thesis problem to be studied.
3. Approve the Program of Study including the assignment of remedial and required coursework.
4. Meet with the student during the first semester of coursework, and at least once a year thereafter, to assess the student's progress in coursework and the thesis.

5. Review and approve the student's thesis, participate in the final oral defense of the thesis, and certify that the student has successfully completed the Program of Study.

THE ROLE OF THE MAJOR PROFESSOR

The Major Professor is expected to carry out the following functions for each graduate student advisee:

1. Function as research advisor, counselor, and mentor for the student. The Major Professor will work closely with students in all aspects of the graduate program.
2. Working with the student, recommend to the Graduate Coordinator two faculty members to serve as members of the student's Thesis Committee.
3. Working with the student, establish a program of courses for the first semester prior to the establishment of the Thesis Committee.
4. Working with the student, develop a recommended Program of Study that meets the needs of the student and the requirements of the graduate program.
5. Ensure that the Thesis Committee meets periodically and functions effectively.
6. Review and approve the student's thesis before submitting it to other members of the student's Thesis Committee for review.
7. Keep the student informed about what must be done to move smoothly through the graduate program.
8. Organize and administer the student's final oral defense of thesis.
9. Approve the student's application for graduation.

PROGRAM OF STUDY

By the end of the first semester of coursework the Major Professor, in consultation with the Thesis Committee and the student, must submit an approved Program of Study Form (http://www2.nau.edu/gradcol/POS/Forestry_MSF_CURRENT.docx) to the School of Forestry Graduate Coordinator and the Graduate College. The Program of Study outlines a planned series of coursework and academic experiences for each student. It clearly specifies required courses and lists a tentative thesis topic. Remedial course requirements should be documented by the Remedial Course Plan Form (available in the appendix of this document or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>). The Thesis Committee and Executive Director of the School of Forestry must approve the Program of Study, including any revisions of the Program of Study. Once a Program of Study has been approved, a student is expected to adhere to the Program.

The Program of Study Form, including any revised Programs of Study, must be copied to the

Graduate Coordinator, the graduate student's file in the School of Forestry office, the Major Professor, all members of the student's Thesis Committee, and the Graduate College.

M.S. COURSEWORK REQUIREMENTS

The Major Professor and the Thesis Committee in consultation with the student will determine the courses required for each graduate student.

The following rules should be considered:

The Master of Science in Forestry requires 32 semester credit hours including 8 hours of thesis (FOR 699). You must complete at least 18 hours of formal coursework - that is, courses other than such individualized studies as independent studies, directed readings, and research.

1. No remedial coursework may satisfy these requirements.
2. For the thesis program all students must take, at a minimum, the 32 credit hours listed below, as well as required remedial coursework:
 - FOR 505 Forestry Seminar Series (1)
 - FOR 690 Research Methods (3)
 - FOR 692 Proseminar (2)
 - Six hours of graduate-level (500-, 600-, 700-) courses with significant content in statistics from:
 - STA 570 Statistical Methods I (3)
 - STA 571 Statistical Methods II (3)
 - STA 572 Multivariate Statistical Methods (3)
 - STA 574 Categorical Data Analysis (3)
 - STA 676 Experimental Design (3), CCJ 614 Research Statistics (3) OR SOC 655 Quantitative Analysis (3)
 - BIO 682 Quantitative Biology (3)
 - Other graduate-level courses with significant content in statistics.
 - 12 hours of elective coursework, including at least 6 hours of formal coursework (i.e., courses other than individualized studies, directed readings, and research), chosen in consultation with the major professor and thesis committee. The elective coursework requirement can be partially met (10 of the required 12 hours) by completing the Ecology, Evolution, and Conservation Biology (EECB) Emphasis, which requires completion of 3 credit hours of BIO 577 (Concepts in Ecology), 1 credit hour of a seminar course (FOR 505 or BIO 698), and 6 credit hours of graduate-level courses selected from each of two of the following groups: quantitative, physiological/population/community, and ecosystem/global. Courses available for these groups are listed on the Program of Study Form (http://www2.nau.edu/gradcol/POS/Forestry_MS_F_CURRENT.docx) and NAU catalog description for the degree.
 - Eight hours of FOR 699, thesis credit (note: more than eight hours of thesis may be taken, but only eight hours may be counted toward coursework requirements)
3. All graduate students must maintain a GPA of 3.0 or better. Only six hours of grade C

are acceptable in the Master's degree program. A grade below C does not earn graduate credit. A student with more than 6 units of graduate work with a grade of "C" or below cannot continue in a master's or doctoral plan, regardless of GPA. Graduate students do not normally repeat courses. But, if a grade of "D" or "F" is received in a graduate course, students may repeat that course, with advisor approval. The repeated course does not replace the grade for the prior course; if a course is repeated, both grades are used in the computation of the overall grade point average (GPA). Units earned for repeated courses may only be used once to fulfill graduation requirements.

4. No graduate credit is allowed for courses numbered 100-399. With the approval of the Thesis Committee, up to two 400-level courses taken at NAU may be used on a Master's degree program (requires filing of the Override Authorization-Audit/Class Links/Out of Career Form, available from the Registrar's website: <http://nau.edu/Registrar/Forms-and-Policies/>).
5. The maximum graduate course load is 16 hours/semester. Graduate research assistants may take only 12 hours/semester. The minimum course load for full-time graduate students is 9 hours/semester. Graduate Assistants must be full-time graduate students (i.e., must maintain a course load of 9 - 12 hours/semester).
6. Graduate students working on a thesis are expected to enroll in FOR 699 (Thesis) each fall and spring semester from the semester of first enrollment in FOR 699 until completion of the degree. You must register in FOR 699 for a minimum of one credit each fall and spring semester. If you are using research or other university facilities, and/or the professional time of faculty members, you should enroll for at least three credits. During the term you complete and defend your thesis (even if you defend and complete during the summer session), you must enroll for at least one credit. If you do not maintain continuous enrollment after your work has begun on your thesis and you do not have an approved leave of absence on file with the Graduate College and wish to resume work, you must submit a new application for admission and register for additional credits of Thesis (FOR 699) in an amount, equal to the number of such credits missed while not maintaining continuous enrollment.
7. Contingent on approval of the Major Professor and Thesis Committee, up to 25% of the credits required for the M.S. degree may be transferred to NAU from another graduate institution. Transfer courses used to meet degree requirements must be submitted to the Graduate College using the Petition for Transfer Credit Form: <http://nau.edu/GradCol/Policies-and-Forms/Forms/>). The Graduate College must approve all use of transfer courses to meet degree requirements.
8. A graduate student may not repeat a course and have the second grade substituted for the first grade. A graduate student, however, may repeat a course, but both grades are used in computing the grade point average.
9. Read and follow the guidelines and procedures for NAU Master's programs described by the Graduate College at: <http://nau.edu/GradCol/Student-Resources/Theses-and->

RESEARCH PROPOSAL

All students in the Master's program must prepare a detailed proposal for their thesis research. The proposal demonstrates that the student has reviewed the literature and describes in detail how the research will be conducted.

The proposal should be completed by the end of the second semester of regular graduate coursework. A major objective of Forestry 690 (Research Methods) is to provide the skills and guidance necessary for each student to complete a successful research proposal. Research Methods is required of all Master of Science students and fulfills the research proposal requirement.

THESIS REQUIREMENTS

The purpose of a thesis is to give the student experience in carrying out the kind of research he or she may expect to do throughout a professional career. A thesis involves a significant investigation of the literature. It may involve a re-examination or re-evaluation of information generated by others in an effort to confirm or review their conclusions. It may also involve generating new knowledge through original research. It is intended to demonstrate ability to work independently on a problem, wide familiarity with the literature in the field of the program, command of the techniques and the principles of research, and ability to form valid generalizations from the data used.

No acceptable or unacceptable length to a thesis exists; the nature of the subject must determine the amount of writing necessary. In general, the acceptability of a thesis can be measured by asking whether the study would be suitable for publication in a refereed research journal in the field. Graduate students in the School of Forestry are expected to prepare at least one draft manuscript suitable for publication before graduation.

Graduate students must ensure that their thesis meets general university requirements by working with the Graduate College's Format Editor. Theses in manuscript format are acceptable to the Graduate College and are endorsed by the Forestry faculty.

Theses in manuscript format should have all of the same basic components that occur in a normal thesis. The main distinction of a manuscript format thesis is that within the context of the thesis there are one to several distinct manuscript chapters. The intent of the manuscript chapter format is to facilitate the preparation of manuscripts for submission to professional journals while completing the thesis requirement.

A manuscript thesis must have an introduction to the entire thesis (including a literature review if appropriate), and then is divided into chapters or manuscripts. Each chapter has a title, abstract, introduction, materials and methods, results, discussion, and literature cited sections. The thesis should have an overall preface that explains the structure and organization of the thesis. Following the individual manuscript chapter(s), a final chapter should discuss the management implications of the research. Some redundancy may exist in the thesis to maintain integrity of the individual manuscripts, but this should be kept to a minimum.

There may be slight variations in style between manuscripts reflecting different journal requirements. The non-manuscript portion of the thesis should have consistent style. Students are advised to visit with the Graduate College Format Editor well in advance of preparing their thesis.

Below are guidelines for completing the thesis.

1. The first draft of the thesis should be provided to the Major Professor at least eight weeks prior to graduation. The Major Professor must review the thesis and return to the student for revision; several cycles of review and revision often are required. The thesis should be submitted for format review by the Graduate College at this time.
2. The revised thesis should be submitted to the Thesis Committee at least six weeks prior to graduation. The Committee should review the thesis within two weeks. If a Committee member determines the thesis to be inadequate she or he may return it to the student with requested revisions.
3. The final revised draft of the thesis should be submitted to the Major Professor at least four weeks prior to graduation. Students are expected to carefully consider the comments of their Thesis Committee. The Major Professor has responsibility to ensure that the recommendations of the committee are considered in the revisions. The Major Professor has final responsibility for thesis approval. Students should be aware that this is the minimum acceptable time for each review step. The Graduate College estimates the average time required to complete the thesis is three months following approval of the format by the Graduate College. Consequently, students are advised to arrange their first format review with the Graduate College Format Editor in the first two weeks of the semester they plan to complete the thesis.
4. NAU thesis formatting and submission is electronic. The thesis document must be submitted to the Graduate College for a format check early in the semester the student plans to defend but no later than three weeks before the defense. The last possible date to submit the document for a format check is twenty-one (21) business days before the end of the semester. See the Checklist for Proper Document Format for all items that need to be addressed prior to submission (<http://www2.nau.edu/gradcol/ThesesDiss/ChecklistProperDocumentFormat.pdf>).
5. Submit an electronic copy of the following items to the Graduate College ETD coordinator (etd@nau.edu) for format review:
 - a. Title Page
 - b. Abstract
 - c. Thesis (completed document)The ETD coordinator will check the document for compliance with the format requirements outlined in the Checklist for Proper Document Format and will notify the student via NAU email regarding the results of the review and indicating any revisions

that need to be made to the document.

6. Students must register for at least one credit of thesis (FOR699) for each semester after the defense until final copies of the thesis are submitted to the Graduate College, including summer semester.
7. The final thesis should be submitted to the Graduate College at etd@nau.edu after approval by the Thesis Committee and a successful final examination.

FINAL EXAMINATION

A final examination, or defense, of the thesis is required for all Master of Science candidates. The defense consists of two components: 1) presentation, and 2) oral examination. The presentation component is open to all students, staff, and the public. In the presentation component the student orally presents an overview of the objectives, methods, results, and implications of the thesis research. Questions from the audience are permitted within the 60 minute maximum presentation period. Non-faculty must leave the examination following the presentation.

The oral examination will start about 15 minutes after the presentation. The examining committee must consist of at least the Thesis Committee. Faculty who are not on the Thesis Committee may attend the oral examination, but cannot vote on the student's performance. The Major Professor has the responsibility to ensure that the examination is conducted in a fair and appropriate manner. The Major Professor will direct questions from the examining committee to the student. Questions will be limited to the thesis or general knowledge related to the thesis. Extended and detailed answers are expected from the student in response to questions. Oral examination questions should be designed to allow students to demonstrate their ability to integrate and apply information gained from coursework and the thesis research project.

Following the examination period (maximum time two hours) the student will be asked to leave the room, while the Major Professor leads a discussion of the examination. All faculty members may discuss the student's performance. However, only members of the student's Thesis Committee can vote whether to pass or fail the student. A passing vote by a 2/3 majority of the Committee members is required to pass the defense. If a student fails the first defense, he or she will be given another opportunity to defend. The second defense should be scheduled within six months of the first defense. Students will be notified immediately as to the outcome of the defense. The Report must be signed by all members of the Thesis Committee, the Graduate Coordinator, and the Executive Director of the School of Forestry.

Forms: The Final Oral Examination (Thesis/Dissertation Defense) – Part 1 (Pass/Fail Form) Form is used to record and document the vote of the Thesis Committee. This form is available to faculty at the following Graduate College website: <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>.

The following rules apply to the final oral examination:

1. The examination must be announced to the faculty (via memo or email) at least one week in advance. The exam should be announced to other appropriate departments. A copy of the thesis shall be available for inspection by all faculty one week in advance by putting one copy next to faculty mailboxes in the School of Forestry mailroom.
2. The final examination is open to faculty, but is closed to other graduate students. However, graduate students may attend the presentation part of the final examination.

RECOMMENDED TIME LINE FOR MASTER OF SCIENCE

By no later than ...	Required activity or status:
The end of the first semester	<ul style="list-style-type: none"> • Thesis Committee formed and meets • Program of Study developed and approved by Thesis Committee
The end of the second semester of coursework	<ul style="list-style-type: none"> • Research proposal prepared (FOR 690 taken)
The end of the next to last semester of coursework	<ul style="list-style-type: none"> • Apply for graduation
Eight weeks prior to graduation	<ul style="list-style-type: none"> • Draft of thesis to Major Professor • Draft of thesis to Graduate College for format review
Six weeks prior to graduation	<ul style="list-style-type: none"> • Revised draft of thesis to Thesis Committee
Four weeks prior to graduation	<ul style="list-style-type: none"> • Final revised draft of thesis to Major Professor • Thesis submitted to Graduate College for second format review (if required)
One week prior to graduation	<ul style="list-style-type: none"> • Final copies of thesis submitted to Graduate College • Final oral examination

CHAPTER 6 - MASTER OF FORESTRY (NON-THESIS OPTION)

This 33-hour program prepares you for a career in forest management, in contrast to a career in research. It is appropriate for students who desire advanced training in forestry, but not a research focus. The Master of Forestry degree is also offered as the Peace Corps Master's International Option. Master of Forestry students can qualify for the WICHE WRGP program (see <http://nau.edu/gradcol/financing/western-regional-graduate-program/>) which may allow funding for certain out-of-state students to earn their degree at the cost of in-state tuition.

The program of study involves a minimum of 30 semester hours of coursework plus three hours of credit for the professional paper, plus any remedial coursework required as part of admission, and is designed by the student in consultation with the student's Major Professor whose interests complement those of the student. The student's Program of Study includes core courses, as specified below, plus a selection of courses tailored to the student's personal interests. The development of both oral and written communications skills is an integral and essential part of the program.

The Master of Forestry degree includes the preparation and presentation of a professional paper, rather than a research thesis, on a subject relating to forest management. The successful completion of academic coursework and preparation of the professional paper leads to a Master of Forestry degree.

The Graduate Coordinator will recommend to the Executive Director of the School of Forestry one member of the School of Forestry tenure-track faculty or a Research Professor working full time in the School of Forestry to serve as the student's Major Professor. During the admission process, the Graduate Coordinator attempts to match the student's expressed interests with those of a faculty member.

PROGRAM OF STUDY

The Program of Study Form, approved by the Major Professor and the Executive Director of the School of Forestry, must be submitted to the student's file in the office of School of Forestry, the Major Professor, and the Graduate College no later than the end of the first semester of coursework after the student has been fully admitted. The Program of Study Form is available at: http://www2.nau.edu/gradcol/POS/Forestry_MF_CURRENT.docx. Remedial course requirements should be documented by the Remedial Course Plan Form (available in the appendix of this document or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>).

The following rules for all Master's degrees at NAU should be followed:

- Each student is required to maintain a 3.0 grade-point average for all courses taken and must also maintain a 3.0 grade-point average for all courses required in the student's program.
- Only six semester hours of graduate coursework with a grade of "C" are acceptable.

A student with more than 6 units of graduate course work with a grade of "C" or below cannot continue in a master's program, regardless of GPA. Graduate students do not normally repeat courses. But, if a grade of "D" or "F" is received in a graduate course, students may repeat that course, with advisor approval. The repeated course does not replace the grade for the prior course; if a course is repeated, both grades are used in the computation of the overall grade point average (GPA). Units earned for repeated courses may only be used once to fulfill graduation requirements.

No graduate credit is allowed for courses numbered 100-399. With the approval of the student's Major Professor, up to two 400-level courses taken at NAU may be used on a Master's degree program (requires filing of the Override Authorization-Audit/Class Links/Out of Career Form, available from the Registrar's website: <http://nau.edu/Registrar/Forms-and-Policies/#General>).

- You must complete at least 24 hours of formal coursework - that is, courses other than such individualized studies as independent studies, directed readings, and research.
- Graduate students working on a professional paper are expected to enroll in FOR 689 (Professional Paper) each semester from the semester of first enrollment in FOR 689 until completion of the degree. Most students will enroll in three credits of FOR 689 in their last semester. A maximum of 4 credits total is allowed for FOR689. Failure to complete FOR 689 in that semester requires enrollment for at least one credit in the next semester. If you do not maintain continuous enrollment after your work has begun on your professional paper and you do not have an approved leave of absence on file with the Graduate College and wish to resume work, you must submit a new application for admission and register for additional credits of Professional Paper (FOR 689) in an amount, equal to the number of such credits missed while not maintaining continuous enrollment.
- Read and follow the guidelines and procedures for NAU Master's programs described by the Graduate College at: <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>.

M.F. COURSEWORK REQUIREMENTS

The courses required for each graduate student are determined by the Major Professor in consultation with the student.

Required Courses (6 hours):

FOR 505	Forestry Seminar Series (1)
FOR 692	Pro Seminar (2)
STA 570	Statistical Analysis I (3), or one, three-credit hour graduate-level course with significant content in statistics

Core Courses (8-9 hours):

8-9 hours of core courses, with one course from each of the following subject areas:

Ecosystem Science: FOR 500, 504, 515, 520, 521, 544, 545, 550, 551, 552, 553, 554, 560, 563, 565, 580, 582, 604, and MAT 542 and 543

Forest Management Sciences and Economics: FOR 500, 525, 545, 551, 565, 573, 590, 593, and 633

Forest Social Science: FOR 515, 573, and; POS 555/ENV 555, 658, and 659;

Courses offered as Special Studies in Forestry (FOR 506), Advanced Studies in Forestry (FOR 695), special topics courses, or other courses offered by the School of Forestry or other departments that are clearly related to the subject areas can be used as core courses with approval by the Major Professor.

Elective Courses (15-16 hours):

You must take 15-16 hours of electives, chosen in consultation with your Major Professor. The elective coursework requirement can be partially met (10 of the required 15-16 hours) by completing the Ecology, Evolution, and Conservation Biology (EECB) Emphasis, which requires completion of 3 credit hours of BIO 577 (Concepts in Ecology), 1 credit hour of a seminar course (FOR 505 or BIO 698), and 6 credit hours of graduate-level courses selected from each of two of the following groups: quantitative, physiological/population/community, and ecosystem/global. Courses available for these groups are listed on the Program of Study Form (http://www2.nau.edu/gradcol/POS/Forestry_MF_CURRENT.docx) and NAU catalog description for the degree.

Professional Paper (3 hours):

FOR 689 Professional Paper (3)

TOTAL REQUIRED: 33 hours

COURSE LOADS

For graduate students, 9 credit hours during fall and spring semesters are considered to be full-time enrollment. The minimum full-time course load is 9 credit hours during fall or spring semester, and 16 hours is the maximum (12 hours for graduate assistants).

THE PROFESSIONAL PAPER

Each student will prepare a professional paper (FOR 689 Professional Paper) under the guidance of the Major Professor. The professional paper will serve as a capstone exercise that will help students integrate knowledge and information from courses and other information to produce new insights on forest management. The professional paper will serve as the written

comprehensive exam required under the “Comprehensive Examination Plan” for Master’s degrees at NAU.

REQUIREMENTS OF THE PROFESSIONAL PAPER

1. The final product must be a manuscript of length appropriate for submission to a professional journal, and judged by the Major Professor and the graders of the paper to represent "publishable quality" with respect to a relevant refereed journal. Actual publication, with the Major Professor as co-author as appropriate, is encouraged but not required. The paper should include a title page that includes the names of the author and the graders of the paper, and the year that the paper was completed.
2. The paper should have a forest management orientation. It may address a specific forest management problem, or it might have a more philosophical or theoretical orientation. Examples of professional paper topics include the following:
 - an article describing the forest management philosophy and practices of Native Americans;
 - a literature review relating to specific forest management policies or activities of an agency such as the USDA Forest Service;
 - an analysis of the potential application of forest management principles to community forestry in the tropics;
 - a paper describing the utility of technology such as an electronic spreadsheet or geographical information system for solving forest management problems;
 - an analysis of potential local, regional, national, or international economic impacts associated with forest management as compared to commodity-oriented management;
 - an analysis of a complex local, regional, national, or international natural resources problem that has implications for forest management;
 - a compilation of background material that might form the basis for a research proposal relating to forest management;
 - results of pilot studies or establishment of research methodologies for future analysis.

IDENTIFYING THE TOPIC FOR THE PROFESSIONAL PAPER

The student and the Major Professor will jointly identify a topic to be used for the student's professional paper. The subject of the professional paper may be suggested by either the student or the Major Professor, but must be agreed upon by both. The student should consult the Major Professor regularly during the preparation of the professional paper.

COMPLETING THE PROFESSIONAL PAPER

Prior to the student's last semester, the Major Professor, in collaboration with the student, will recruit at least two other faculty or resource professionals to serve as graders of the professional paper. At least one grader must be faculty in the School of Forestry, and at least two graders must be faculty or adjunct faculty at NAU. If desired, one grader may be a non-faculty professional working in forestry or a related discipline. The graders, including the Major Professor, will critique and approve an outline and scope of the professional paper within the first two weeks of the student's enrollment in FOR 689, and review and approve the paper, which is due the last day of class in the semester of student enrollment in FOR 689. A 2/3 vote of approval on a pass/fail basis by the grading committee is required for the student to pass FOR 689. The Major Professor will complete the form "Report On Final Examination For Master of Forestry Degree" (available in the appendix of this document or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>) and will submit a fully signed copy to the School of Forestry.

The student must submit an electronic copy of the professional paper to the School of Forestry by emailing it to ForestryGraduateStudies@nau.edu. The student should obtain help from the School of Forestry Information Technology staff if the document is too large to send as an email attachment. On the Graduate Application Form (<http://nau.edu/GradCol/Student-Resources/Graduation/>), check the 'No' box for oral and written defense required.

PRESENTING THE PROFESSIONAL PAPER

A final presentation of the professional paper is required of all Master of Forestry students. The presentation is open to all students, staff, and the public. In the presentation the student will present an overview of their professional paper (approximately 40-45 minutes) and allow 15-20 minutes for questions from the audience. The professional paper should be presented no later than the last day of classes during an academic semester. One copy of the professional paper should be provided to the readers and placed in the School of Forestry mailroom at least one week prior to the final presentation to allow review by faculty, staff, and other students. There is no Oral Exam/Defense required for this degree. A pdf of the final approved copy of the MF paper will be submitted to the Graduate Coordinator of the School of Forestry. The paper will be archived on the School of Forestry website.

MASTER OF FORESTRY, ACCELERATED BACHELOR'S/MASTER'S OPTION

The objective of the accelerated program is to facilitate faster completion of the Master of Forestry graduate degree by outstanding and highly motivated students in the Bachelor's of Science in Forestry at NAU. The accelerated program is designed to use six hours of 400-level courses from the Bachelor's degree program to meet part of the elective requirement of the Master of Forestry degree. This arrangement provides the opportunity for full-time students to complete both the Bachelor's of Forestry and the Master of Forestry in five years.

Students in the Bachelor's of Science, Forestry Program at NAU must meet the following requirements for acceptance into the Accelerated Bachelor's/Master's Option of the Master's of

Forestry: 3.25 GPA overall college and university courses, 3.5 or higher GPA for at least 20 hours of FOR required courses including FOR 313, FOR 314, FOR 315. Students in the Bachelor's of Science, Forestry Program at NAU are eligible to apply for acceptance into the Accelerated Bachelor's/Master's Option of the Master's of Forestry in their junior year. Students should contact the School of Forestry Graduate Coordinator for more information.

MASTER OF FORESTRY, PEACE CORPS MASTER'S INTERNATIONAL OPTION

The NAU School of Forestry, in partnership with the Peace Corps, offers a Peace Corps Master's International Program (PCMI). PCMI offers a unique opportunity to combine Peace Corps service with a Master of Forestry (M.F.) degree. The PCMI program is an option within the Master of Forestry degree and all policies and procedures for the M.F. degree apply to the PCMI program except as noted below.

A typical PCMI program at NAU begins in fall semester when a cohort of students enters the first academic part of the program. Students take two semesters (9-16 credits) of graduate forestry courses. Following two semesters of preparatory classes, students enter the Peace Corps and begin three months of language, culture and technical training. The Peace Corps technical training in forestry may be used to partially meet remedial course requirements (see previous chapter on meeting remedial requirements).

After the Peace Corps in-country two-year experience, students return to NAU for one semester to complete their professional paper and additional course requirements based on their Program of Study. Students earn three credits for preparation of a Professional Paper (For 689) based on their Peace Corp experience. An additional three credits can be earned for completing FOR 695 (advanced studies) on some technical aspect of their in-country assignment.

The following procedures should be followed to arrange a formal leave of absence for students' in-country two-year experience:

1. Students will complete the Petition for Leave of Absence form (<http://nau.edu/GradCol/Policies-and-Forms/Forms/>).
2. Students will indicate on the form the entire time period (27 months) that they will not be enrolled for NAU courses.
3. A copy of the approved petition will be on file in the Graduate College.
4. Students will be eligible to enroll for classes without applying for readmission upon their return to NAU (generally after four regular semesters for Peace Corps students; summers not included)
5. The Faculty Coordinator for the Peace Corps Program will send an email to the Graduate College providing the names of the students along with information regarding the term/year of enrollment (e.g., John Doe, Fall 2010). This email should generally be sent at least one semester (fall or spring) prior to returning to NAU.
6. The Graduate College will verify that they are eligible to enroll.

Financial Assistance special consideration: Students in the PCMI program are eligible for a wide array of financial assistance available at NAU. Partial waiver of in-state tuition is also possible. Students receiving the PCMI Assistantship are required to work ten hours per week in various

projects at the discretion of the Major Professor.

M.F. COURSEWORK REQUIREMENTS – PEACE CORPS MASTER’S INTERNATIONAL OPTION

The courses required for each graduate student are determined by the Major Professor in consultation with the student.

Required Courses (10 hours):

FOR 505	Forestry Seminar Series (1)
FOR 515	Forestry in Developing Countries (3)
FOR 692	Pro Seminar (2)
FOR 697	When offered as International Development (1)
STA 570	Statistical Analysis I (3), or one, three-credit hour graduate-level course with significant content in statistics

Core Courses (9 hours):

9 hours of core courses, with one from each of the following subject areas:

Ecosystem Science: FOR 500, 504, 515, 520, 521, 544, 545, 550, 551, 552, 553, 554, 560, 563, 565, 580, 582, 604, and MAT 542 and 543

Forest Management Sciences and Economics: FOR 500, 525, 545, 551, 565, 573, 590, 593, and 633

Forest Social Science: FOR 573, and; POS 555/ENV 555, 658, and 659;

Courses offered as Special Studies in Forestry (FOR 506), Advanced Studies in Forestry (FOR 695), International Courses (FOR 441), special topics courses, or other courses offered by the School of Forestry or other departments that are clearly related to the subject areas can be used as core course with approval by the Major Professor.

Elective Courses (11-12 hours):

You must take 11-12 hours of electives, chosen in consultation with your Major Professor. Students may receive up to 6 hours of independent study for a project completed during their Peace Corps service. Normally, students enroll for this credit in their last semester prior to completing the program.

Professional Paper (3 hours):

FOR 689	Professional Paper (3)
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TOTAL REQUIRED: 33 hours

Course Loads

For graduate students, nine credit hours during fall and spring are considered to be full-time enrollment. The minimum full-time course load is nine credit hours during the fall or spring

semester, and 16 hours maximum (12 hours for graduate assistants)

SUMMARY OF IMPORTANT DEADLINES FOR THE MASTER OF FORESTRY

By no later than ...	Required activity or status:
The end of the first semester of coursework	<ul style="list-style-type: none"> • The Student and Major Professor meet and determine: 1) the program of study of courses; and 2) the general topic the student will address in the professional paper. The Program of Study Form, which summarizes this information, must then be approved by the Graduate Coordinator and the Executive Director of the School of Forestry. Copies of the approved form will be sent to the Major Professor, the student's file in the office of the School of Forestry, the Graduate College, and the Peace Corps for PCMI students.
Beginning of the final semester of coursework	<ul style="list-style-type: none"> • The Major Professor forms the grading committee for the professional paper, FOR 689, and the committee meets and approves the scope and an outline of the professional paper. • Student obtains from the Graduate College a copy of the form "Application for Graduation (Master's or Doctorate)" and submits it to the Graduate College via the Major Professor with a copy to the Graduate Coordinator.
Six weeks prior to the end of the semester	<ul style="list-style-type: none"> • Student submits a draft of the professional paper to the Major Professor.
Four weeks prior to the end of the semester	<ul style="list-style-type: none"> • Major Professor sends the revised draft of the professional paper to grading committee.
Prior to the last day of classes	<ul style="list-style-type: none"> • Professional paper presentation.

CHAPTER 7 - DOCTOR OF PHILOSOPHY IN FORESTRY

DOCTOR OF PHILOSOPHY DEGREE

The Doctor of Philosophy (Ph.D.) degree is the terminal degree offered in the profession of forestry. Students with the Ph.D. degree normally pursue a career in research and/or education. Ph.D. students are expected to demonstrate skill in the generation of original ideas, command of the literature, skill at designing, analyzing, and interpreting research, skill in scientific writing including the publication of research results in major professional refereed journals, and basic skills in teaching. Ph.D. students are expected to be self-motivated and largely direct their own research program with advice and counsel from the Major Professor and Dissertation Committee. The Ph.D. is a research degree that should be evaluated based on the originality and quality of the new knowledge generated.

The School of Forestry offers three Ph.D. emphasis areas: Ecosystem Science, Forest Management Sciences and Economics, and Forest Social Science.

DISSERTATION COMMITTEE ESTABLISHMENT

The Graduate Coordinator will recommend to the Executive Director of the School of Forestry one member of the School of Forestry tenure-track faculty, or a Research Professor working full time in the School of Forestry, to serve as the student's Major Professor. The Major Professor, in conjunction with the student, will recommend members of the Dissertation Committee to the Graduate Coordinator using the Program of Study Form for Ph.D. available at http://www2.nau.edu/gradcol/POS/Forestry_PHD_CURRENT.docx. Remedial course requirements should be documented by the Remedial Course Plan Form (available in the appendix of this document or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>). Dissertation Committees include at least four members who have earned doctorate degrees and have expertise relevant to the dissertation. In rare circumstances and with approval from the Graduate College, a committee member with a master's degree and relevant expertise unique to the project may be considered. In addition to the Major Professor, at least one member of the Dissertation Committee must be faculty, adjunct faculty, or research faculty in the School of Forestry. Dissertation Committees must include a member who is outside the School of Forestry. This outside-department member of the Dissertation Committee may be faculty, adjunct faculty, or research faculty at NAU or at other colleges and universities, but also may include non-university scientists and specialists, such as researchers with governmental agencies or non-governmental organizations. Additional members of the Dissertation Committee typically are faculty, adjunct faculty, or research faculty at NAU or at other colleges and universities, but also may include non-university scientists and specialists, such as researchers with governmental agencies or non-governmental organizations. Participation on a Dissertation Committee by a person who is not faculty, adjunct faculty, or research faculty at NAU must be approved by the Graduate College using the "Recommendation of Dissertation Committee Form" available at <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>, which requires attachment of the committee member's vita. Adjunct faculty may serve as members of the Dissertation Committee, but not as the Major Professor.

The student's advisor is responsible for submitting to the Graduate College the "Recommendation of Dissertation Committee Form" available at <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>.

Once a Dissertation Committee has been established, faculty who retire may continue to serve on the Dissertation Committee. The Dissertation Committee shall be established within the first semester that a student begins coursework.

The Dissertation Committee's assessment of the student's progress towards meeting degree requirements will be summarized on the "Ph.D. Student Progress Evaluation Form" (available in Appendix A or <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>), which shall be completed each year. Copies of the form shall be given to the student and placed in the student's departmental file.

Ph.D. COURSEWORK – GENERAL RULES

The Major Professor and the Dissertation Committee in consultation with the student shall determine the required courses.

The following rules should be considered:

1. All graduate students must maintain a GPA of 3.0 or better. Only six hours of grade C are acceptable in the Ph.D. degree program. The student must receive a "B" or better in the fifteen credit hours selected in the emphasis area. A student with more than 6 units of graduate course work with a grade of "C" or below cannot continue in a Ph.D. program, regardless of GPA. Graduate students do not normally repeat courses. But, if a grade of "D" or "F" is received in a graduate course, students may repeat that course, with advisor approval. The repeated course does not replace the grade for the prior course; if a course is repeated, both grades are used in the computation of the overall grade point average (GPA). Units earned for repeated courses may only be used once to fulfill graduation requirements.
2. No graduate credit is allowed for courses numbered 100-399. Up to nine hours of 400-level courses from NAU may be used on a Ph.D. degree program with the approval of the Dissertation Committee (requires filing of the Override Authorization-Audit/Class Links/Out of Career Form, available from the Registrar's website: <http://nau.edu/Registrar/Forms-and-Policies/>).
3. The maximum graduate course load is 16 hours/semester. Graduate research assistants may take only 12 hours/semester. The minimum course load for full-time graduate students is nine hours/semester. Graduate assistants must be full-time graduate students (9-12 hours/semester) except as noted under the credit load section.
4. Graduate students working on a dissertation are expected to enroll in FOR 799 (Dissertation) each semester from the semester of first enrollment in FOR 799 until completion of the degree. You must register in FOR 799 for a minimum of one credit each fall and spring semester. If you are using research or other university facilities,

and/or the professional time of faculty members, you should enroll for at least three credits. During the term you complete and defend your dissertation, you must enroll for at least one credit. If you do not maintain continuous enrollment after your work has begun on your dissertation and you do not have an approved leave of absence on file with the Graduate College and wish to resume work, you must submit a new application for admission and register for additional credits of Dissertation (FOR 799) in an amount, equal to the number of such credits missed while not maintaining continuous enrollment.

5. Contingent on approval of the Major Professor and Dissertation Committee, any number of the credits required for the Ph.D. degree may be transferred to NAU from another institution. However, only a maximum of 24 credit hours of graduate-level coursework completed during a Master's degree can be used to meet degree requirements. Note: Students must take at least two of the five emphasis area courses at NAU (see below), and obtain approval from the Dissertation Committee for any courses taken elsewhere.
6. A graduate student may not repeat a course and have the second grade substituted for the first grade. A graduate student may repeat a course, but both grades are used in computing the grade point average.
7. Read and follow the guidelines and procedures for NAU doctoral programs described by the Graduate College at: <http://nau.edu/GradCol/Student-Resources/>

Ph.D. COURSEWORK – REQUIREMENTS

A total of 63 credits are required for the Ph.D. degree as outlined below:

1. A minimum of 15 dissertation credit hours is required.
2. A minimum of 48 credits hours of coursework (beyond the Bachelor's degree) that includes:
 - A minimum of 39 credit hours of 500-600 level courses;
 - A maximum of nine credit hours of 400-level courses, subject to Committee approval;
 - A maximum of 24 credit hours of coursework completed during a Master's degree, which may be credited to the 48 credit hour requirement.
 - No remedial coursework or dissertation hours (FOR 799) may satisfy the 48 credit hour requirement.
3. All doctoral students must take the following 14 hours:
 - FOR 505 Forestry Seminar Series (1 hour): Students must take FOR 505 at least at once during their degree program. The course may be taken up to five times during the degree program.
 - FOR 690 Research Methods (3 hours), or another graduate-level course with three-credit-hours of content in defining, organizing, conducting, and evaluating scientific research, the philosophy of science, and the preparation and review of research proposals.
 - FOR 692 Proseminar I (2 hours): Doctoral students (not M.S. or M.F. students) may earn credit for FOR 692 based on demonstration of proficiency in preparing and presenting scientific talks and posters. This way of earning credit for Proseminar requires course registration in FOR 692. Proficiency will be shown within the first year of enrollment by presentation of a departmental seminar based on previous or current research, and a public presentation of a poster based on previous research, in the Forestry Building. The seminar and poster will be evaluated by the student's Major Professor and FOR 692 instructors to assess whether the presentations meet requirements for passing FOR 692. If the requirements are not met, the student must take FOR 692. Graduate-level courses transferred from other universities or taken at NAU with two credit hours of content in the preparation and presentation of scientific talks and posters may be used to meet the requirement for FOR 692, contingent on approval by the Dissertation Committee and Graduate Coordinator.
 - FOR 693 Teaching Practicum (2 hours)
 - Six hours of graduate-level (500-, 600-, 700-) courses with significant content in statistics from:
 - STA 570 Statistical Methods I (3)

- STA 571 Statistical Methods II (3)
 - STA 572 Multivariate Statistical Methods (3)
 - STA 574 Categorical Data Analysis (3)
 - STA 676 Experimental Design (3)
 - CCJ 614 Research Statistics (3) OR SOC 655 Quantitative Analysis (3)
 - BIO 682 Quantitative Biology (3)
 - Other graduate-level courses with significant content in statistics.
4. You must also take 15 hours in your emphasis. Students must take at least two of these courses at NAU and obtain approval from the Dissertation Committee for any courses taken elsewhere.
5. You must also take 19 hours of electives. The elective coursework requirement can be partially met (13 of the required 19 hours) by completing the Ecology, Evolution, and Conservation Biology (EECB) Emphasis, which requires completion of 3 credit hours of BIO 577 (Concepts in Ecology), 1 credit hour of a seminar course (FOR 505 or BIO 698), and 9 credit hours of graduate-level courses selected from each of the following groups: quantitative, physiological/population/community, and ecosystem/global. Courses available for these groups are listed on the Program of Study Form (http://www2.nau.edu/gradcol/POS/Forestry_PHD_CURRENT.docx) and NAU catalog description for the degree.

The following section list graduate courses that constitute Ph.D. emphasis areas:

Ph.D. COURSEWORK – EMPHASIS AREAS

A. ECOSYSTEM SCIENCE EMPHASIS

FOR 500	Multi-resource Forest Management Principles	3
FOR 504	Forest Wildlife Ecology & Management.....	3
FOR 515	Forestry in Developing Countries	3
FOR 520	Applied Forest Stand Dynamics.....	3
FOR 521	Advanced Topics in Forest Soils and Ecosystem Ecology	3
FOR 544	Landscape Ecology	3
FOR 545	Rangeland Ecology and Management.....	3
FOR 550	Forest Tree Ecophysiology	3
FOR 551	Fire Ecology and Management:	3
FOR 552	Forest Tree Diseases	3
FOR 553	Forest Entomology.....	3
FOR 554	Integrated Forest Health.....	3
FOR 560	Wetland Ecology and Management.....	3
FOR 563	Watershed Hydrology	3
FOR 565	Watershed Restoration	3
FOR 580	Ecological Restoration Principles	3
FOR 582	Ecological Restoration Applications.....	3
FOR 604	Wildlife Habitat Relationships.....	3

MAT 542:543 Wildlife Population Modeling: Lab 3:2

B. FOREST MANAGEMENT SCIENCES AND ECONOMICS EMPHASIS

FOR 500	Multi-resource Forest Management Principles	3
FOR 525	Geographic Information Systems	4
FOR 545	Rangeland Ecology and Management.....	3
FOR 551	Fire Ecology and Management:	3
FOR 565	Watershed Restoration	3
FOR 573	Human Dimensions of Natural Resource Management.....	3
FOR 593	Natural Resources Economics	3
FOR 590	Economic and Social Issues in Forest Recreation Development.....	3
FOR 633	Ecological Economics.....	3

C. FOREST SOCIAL SCIENCE EMPHASIS

FOR 515	Forestry in Developing Countries	3
FOR 573	Human Dimensions of Natural Resource Management.....	3
FOR 590	Economic and Social Issues in Forest Recreation.....	3
POS/ENV 555	Science, Politics, and the Environment.....	3
POS 658	Topics in Environmental Politics.....	3
POS 659	Environmental Policy.....	3

Courses offered as Special Studies in Forestry (FOR 506, 599), Advanced Studies in Forestry (FOR 695), or special topics courses offered by other departments can be used to fulfill emphasis requirements with approval by the dissertation committee. When Faculty offer a FOR 506, 599, or 695 course, they should work with the Graduate Coordinator to determine the appropriate emphasis area the course satisfies.

PROGRAM OF STUDY

By the end of the first semester of coursework the Major Professor, in consultation with the Dissertation Committee and the student, must submit an approved Program of Study Form (http://www2.nau.edu/gradcol/POS/Forestry_PHD_CURRENT.docx). The Program of Study contains a planned series of coursework and academic experience required for the student. Once a Program of Study has been filed with the Graduate College the student is expected to adhere to the Program. Any changes in the Program of Study must be approved by the Graduate Coordinator and approved by the Major Professor, Dissertation Committee, Executive Director of the School of Forestry, and the Graduate College. Copies of the approved Program of Study Form will be sent to the student’s file in the office of the School of Forestry, the Major Professor, all members of the Dissertation Committee, and the Graduate College.

COURSE LOADS

Nine credit hours during each of the fall and spring semesters are considered to be the minimum course load for full-time enrollment for graduate students. Sixteen hours per semester is the maximum (12 hours for graduate assistants).

After completion of all required course work except dissertation, a resident doctoral student on half-time assistantship may petition to register for six credit hours a semester. Such a petition

should be approved by the Graduate College and be endorsed by the Faculty Advisor and the Executive Director of the School of Forestry.

SEMINAR REQUIREMENTS

All Ph.D. students must attend the School of Forestry seminar series, unless course or research schedules interfere. In addition, all Ph.D. students are required to present two seminars: 1) presentation of final research results in a dissertation defense seminar; and 2) presentation of a talk or poster at a local, state, regional, or national meeting (e.g., Society of American Foresters, Ecological Society of America, Wildlife Society, American Water Resources Association, or other professional organizations). The second seminar must be presented outside the School seminar series and is subject to approval by the student's Major Professor.

RESEARCH COMPETENCY REQUIREMENT

NAU policy for Ph.D. programs includes a “research competency requirement” that must be satisfied before a student can be admitted to candidacy. In the School of Forestry, FOR690 (Research Methods) plus two graduate-level courses (six hours) with significant content in statistics, meet this requirement.

RESEARCH REQUIREMENTS

The Ph.D. degree requires a demonstration of considerable independence, research skill, and experience in a discipline within forestry. Development of techniques, design of experiments, collection and analysis of data, reporting results in written and oral forms, and preparation of research proposals are skills that should be mastered in this degree program. The choice of a problem and research area is made in consultation with the Dissertation Committee. Dissertation research meets School of Forestry standards when it poses a set of objectives which: 1) are based in the theoretical context of the subject, 2) proceed with a sound design that gives due attention to statistical adequacy, and 3) concludes with findings and inferences that once again are set forth in an appropriate theoretical context. The dissertation must demonstrate that the student has mastered his/her field of specialization, has carried out independent scholarly work, and has contributed significant new knowledge.

The student must prepare a research prospectus that outlines the general research area and identifies the research questions to be answered in their research. A brief overview of methods to be used is included. The research prospectus is generally 5-10 pages in length and must be approved by the Dissertation Committee. A copy is placed in the School file, and a copy is included as part of the Dissertation Committee Recommendation Form (<http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>).

COMPREHENSIVE EXAMINATIONS

The goal of the Comprehensive Examinations is to ensure that every Ph.D. student has a rigorously demonstrated competence in a breadth and depth of subjects within the larger field of forestry. In addition, students must demonstrate both written and oral communication skills in English at a level that will allow them to effectively communicate their ideas and knowledge to a wide range of audiences.

In general, Comprehensive Examinations should take place near the end of the student's coursework requirements, as directed by the student's Program of Study.

COMPREHENSIVE WRITTEN EXAMINATION

Each student must successfully complete a written comprehensive examination. This examination is separate from, but related to, the student's coursework requirements. The examination will consist of a line of questioning prepared by each member of the student's Dissertation Committee, subject to the review and approval of the student's Major Professor. A line of questioning may include one or more questions. A student will have a maximum of eight hours to prepare a response to the line of questioning provided by each member of the Dissertation Committee. The exact format for preparing responses for a particular line of questioning is at the discretion of the faculty member preparing the line of questioning, with the approval of the Major Professor.

The Major Professor must read and evaluate all responses. Only the Committee member responsible for a particular line of questioning must read and evaluate the response to that line, although all committee members are encouraged to read all responses. Any member of the Dissertation Committee may request to review the questions and responses of the student.

The author of each line of questioning, along with the Major Professor, will determine the adequacy of the response to each question, both for its subject matter content and its organization and overall quality as a written document. In the event of a disagreement between the committee members, the vote of the entire Committee will determine the adequacy of the response. The student responses to written questions and faculty evaluations of those responses shall become an official part of the student's file.

A student may either pass or fail the examination. A student passes the examination by preparing adequate responses to 2/3 of the lines of questioning. Upon passing the written examination the student becomes immediately eligible for the oral comprehensive examination.

Failure results when the Committee feels that the student has not prepared adequate responses to a majority of the lines of questioning. In this case, the student has the opportunity to retake the failed portions of the examination. New lines of questioning may be substituted for those in the original examination. Students are not required to retake those portions of the examination where responses were judged adequate. A student has only one opportunity to retake any or all of the written examination.

If the student fails the second written examination the student will be immediately dropped from the Ph.D. program. The student may reapply for admission after one year (two semesters). Readmission will be subject to the same requirements as specified for those students applying to the program at the time the application is made.

The Major Professor must inform the student of the outcome of the written examination within 14 days of the time the last examination responses were received from the student. Results of the written examination must be reported to the Graduate College on the "Report of Results of Written Comprehensive Examination" Form (Appendix, or

<http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>).

COMPREHENSIVE ORAL EXAMINATION

The comprehensive oral examination can only be scheduled after the successful completion of the written examination. All Dissertation Committee members must attend the oral examination. The examination should focus on clarification or expansion on any of the responses to the written examination. It may also include other topics agreed upon by the committee, and may include a presentation by the student on the student's research plan and preliminary results.

Generally, the oral examination should continue for 2 hours. At the end of the discussions, the student will be asked to leave the room so that the members of the Dissertation Committee can discuss the student's performance. The Major Professor must inform the student as to the Committee's decision within one hour of the examination's completion.

Students either pass or fail the oral examination. A vote of 2/3 of the Dissertation Committee is required to pass the student. If passed, this qualifies the student for candidacy provided all other candidacy requirements have been successfully completed.

The Major Professor must provide to a student failing the oral examination the reasons for the adverse decision. A student failing the oral examination must retake the examination within 60 days. A student failing the oral examination a second time will be immediately dropped from the Ph.D. program. The student may reapply for admission after one year (two semesters). Readmission will be subject to the same requirements as specified for those students applying to the program at the time the application is made. The results of the oral examination must be reported to the Graduate College on the "Report of Results of Oral Comprehensive Examination" Form (Appendix, or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>).

ADMISSION TO CANDIDACY

A student must apply for candidacy on the form "Application for Candidacy for the Doctoral Degree" (<http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>). The application is approved by the Major Professor, the Executive Director of the School of Forestry, and the Graduate College Dean. Admission to candidacy should be obtained during the semester prior to graduation and must be granted at least 90 days before the Dissertation Defense Examination.

Application for Candidacy of the Doctoral Degree Checklist

1. Submit the Recommendation of Dissertation Committee paperwork with a 2-3 paragraph summary of your dissertation. This form can be found on the Graduate College webpage at <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>.
2. Submit the Report on Results of Written Comprehensive Examination and Report on Results of Oral Comprehensive Examination after you have completed your comprehensive exams. These forms can be found on the School of Forestry webpage at <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>.

3. Submit your dissertation prospectus. Your prospectus consists of the following two items:
 - a. A 5-10 page research prospectus which has been approved by your dissertation committee.
 - b. A copy of your prospectus title page that has been signed by your committee.
4. Complete and submit your candidacy application. This application is located at <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations>. Make sure you can answer yes to the following questions before submitting your candidacy paperwork.
 - a. Have you completed all of your coursework except for dissertation credits?
 - b. Have you met the research competency requirement (completed FOR 690 and two courses (six hours) with a significant content in statistics)?
 - c. Have you met the residency requirements (residency is defined as carrying a minimum load of nine credit hours of Committee-approved courses during a semester or five approved hours during a summer session)?
 - d. Is your program of study current? If your coursework has changed, you will also need to submit an updated program of study with your candidacy application.

All paperwork should be turned in to the School of Forestry once you have obtained the necessary signatures. The School of Forestry Office will then distribute copies of your paperwork and ensure that a copy goes in our files and the Graduate College's files.

DISSERTATION REQUIREMENTS

Dissertation requirements are outlined in the Graduate Catalog (under Thesis and Dissertation Detailed thesis format requirements are specified by the Graduate College at the following webpage: <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>. The student is expected to conform to the style of presentation currently accepted by the Graduate College in preparing all drafts of a dissertation.

Two types of dissertation formats are acceptable. The traditional format includes separate chapters for introduction, literature review, methods, results, discussion, and conclusions/management implications and literature cited. An alternative to the traditional style is a series of manuscripts either submitted, or prepared for submission, to professional journals, with additional introductory and concluding chapters in the Graduate College approved format. The student and Dissertation Committee must agree upon the choice of a specific format.

Dissertations in manuscript format should have all of the same basic components that occur in a normal dissertation. The main distinction of a manuscript format dissertation is that within the context of the dissertation there are one to several distinct manuscript chapters. The intent of the manuscript chapter format is to facilitate the preparation of manuscripts for submission to professional journals while completing the dissertation requirement. A manuscript dissertation must have an introduction to the entire dissertation (including a literature review if appropriate), and then is divided into chapters or manuscripts. Each chapter has a title, abstract, introduction, materials and methods, results, discussion, and literature cited section. The thesis should have an overall preface that explains the structure and organization of the thesis. Following the individual manuscript chapter(s) there is an overall summary of the entire dissertation project, including management implications. Some redundancy may exist in the dissertation to maintain

integrity of the individual manuscripts, but this should be kept to a minimum.

There may also be slight variations in style between manuscripts reflecting different journal requirements. The non-manuscript portion of the dissertation should have consistent style. Students are advised to visit with the Graduate College Format Editor well in advance of preparing their dissertation.

Below are guidelines for completing the dissertation.

1. The first draft of the dissertation must be reviewed by the Major Professor, revised by the student, and approved again by the Major Professor prior to distribution to the Dissertation Committee. This initial review should be made well in advance of the dissertation defense examination and often requires several cycles (minimum of eight weeks). At this time students should submit their dissertation to the Graduate College for format review.
2. The revised dissertation should be submitted to the Dissertation Committee at least four weeks prior to dissertation defense examination. Committee members must provide feedback on the dissertation within two weeks if their changes are to be incorporated into the final draft of the dissertation. The Major Professor has responsibility to ensure recommendations of the Committee are incorporated into the revised dissertation.
3. The dissertation in final draft form, including all figures, tables, and references, must be provided to the Graduate College at least two weeks before the date of the dissertation defense exam.
4. Students should be aware that this is the minimum acceptable time for each review step. The Graduate College estimates the average time required to complete the dissertation is three months following approval of the format by the Graduate College. Consequently, students are advised to arrange their first format review with the Graduate College Format Editor in the first two weeks of the semester they plan to complete the thesis.
5. NAU dissertation formatting and submission is electronic. The dissertation document must be submitted to the Graduate College for a format check early in the semester the student plans to defend but no later than three weeks before the defense. The last possible date to submit the document for a format check is twenty-one (21) business days before the end of the semester. See the Checklist for Proper Document Format for all items that need to be addressed prior to submission. Also helpful might be the Thesis Title Page Model or the Dissertation Title Page Model. Visit <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/> for more information.
6. Submit an electronic copy of the following items to the Graduate College ETD coordinator (etd@nau.edu) for format review:
 - a. Title Page
 - b. Abstract
 - c. Dissertation (completed document)

The ETD coordinator will check the document for compliance with the format requirements outlined in the Checklist for Proper Document Format and will notify the student via NAU email regarding the results of the review and indicating any revisions that need to be made to the document.

7. Students must register for at least one credit of dissertation (FOR799) for each semester after the defense until final copies of the dissertation are submitted to the Graduate College, including summer semester.

DISSERTATION DEFENSE

A defense of the dissertation is required for all Ph.D. candidates. The dissertation defense shall be held within four years of the oral comprehensive exam. If this time is longer than four years, the oral exam must be repeated. The dissertation defense must occur no sooner than 90 days following admission to candidacy. The defense should be scheduled at least four weeks prior to expected date of graduation. The student must complete the “Dissertation Defense Scheduling Form” on the Graduate School webpage (<http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>) and sent it to the Graduate College to schedule the defense.

The defense will be scheduled immediately following the dissertation defense seminar. The dissertation defense seminar is open to the public. The length of the dissertation defense seminar will be limited to 60 minutes, including questions from the audience. The dissertation defense will convene within 20 minutes following the seminar. The defense is restricted to faculty and, at the minimum, must include the entire Dissertation Committee and an observer from outside the School of Forestry, appointed by the Graduate College. The observer reports to the Graduate College on the conduct of the exam and may ask questions, but does not vote. Only Dissertation Committee members can vote on the student's performance in the defense. The maximum time for the dissertation defense (following the seminar) is two hours.

At least four weeks of notice of the defense should be provided to all Dissertation Committee members. All Committee members also should be provided a copy of the dissertation for review at least four weeks prior to the defense. The dissertation must be in final form prior to the defense. It is the Major Professor's responsibility to determine when the dissertation is ready to be defended. However, the Committee can delay the defense if the dissertation is judged to be inadequate.

The Major Professor has the responsibility to ensure that the defense is conducted in a fair and appropriate manner. Questions will be asked by each member of the Dissertation Committee and by other faculty in attendance upon approval of the Major Professor. Questions will be limited to the dissertation or knowledge related to the dissertation. Defense questions should be designed to allow the student to demonstrate ability in interpreting the results of the dissertation research and in discussing the results in relation to current scientific understanding.

Following the defense, the student will be asked to leave the room, while the Major Professor leads a discussion of the examination. A passing vote by a 2/3 majority of the Committee members is required to pass the defense. If a student fails their first defense, they will be given

another opportunity to defend. The second defense must be scheduled within six months of the first defense. Students will be notified immediately as to the outcome of the defense.

Forms: The University Graduate Committee representative provides the Final Oral Examination (Thesis/Dissertation Defense) – Part 1 (Pass/Fail Form) form on which the vote is recorded and which the committee members sign.

STUDENT TEACHING REQUIREMENT

All Ph.D. students benefit by gaining teaching experience. Teaching skills are important for Ph.D. students and provide valuable experience needed in the highly competitive job market. For this reason, the School of Forestry requires all Ph.D. students, regardless of the type of financial support, to have some teaching experience. However, the teaching expectation in the School of Forestry may vary depending on financial support, the year of residence, and competency in teaching.

All Ph.D. students are required to participate in the teaching of an established course in order to gain teaching experience. Such participation will include preparing a minimum of four lectures, delivering them in the presence of a faculty instructor, and developing test questions based on the material presented in class. The Dissertation Committee must approve the proposed teaching experience. All teaching by Ph.D. students must be evaluated by the student's Major Professor or course instructor using the Ph.D. Student Teaching Evaluation Form (Appendix, or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>).

Students who successfully complete FOR 693 (Teaching Practicum) may use this course to fulfill their student teaching requirement, subject to approval by their Major Professor and Dissertation committee. Teaching in a class by a student does not replace the requirement to take FOR 693 (Teaching Practicum), which is a required course for the Ph.D. degree in the School of Forestry.

RESIDENCY REQUIREMENTS

The student must spend two consecutive semesters of full-time study in residence at NAU after formal admission to the Ph.D. program. Residency is defined as carrying a minimum load of nine credit hours of Committee-approved courses during a semester or five approved hours during a summer session.

CHAPTER 8 - APPLICATION FOR GRADUATION

All graduate students in the M.F., M.S., and Ph.D. programs must make a formal application for graduation. A student should apply for graduation in the semester before the semester in which graduation is expected. Forms and information on deadlines are available in the Registrar's Office and the Graduate College (<http://nau.edu/GradCol/Student-Resources//Graduation/>). The application process includes payment of a graduation fee.

In signing the form, the Major Professor asserts that the graduate student is making sufficient progress to be able to complete and defend the professional paper, thesis, or dissertation prior to the end of the semester.

CHAPTER 9 - FINANCIAL ASSISTANCE

There are four broad categories of financial support available to students in the School of Forestry. The first and most common is a research assistantship awarded by the School of Forestry on the basis of academic merit and ability to conduct research in collaboration with a faculty member. The second, a teaching assistantship, is occasionally available depending on funding and teaching needs of the School. Teaching assistantships are awarded by the Executive Director of the School of Forestry. Both Research and Teaching Assistantships include waiver of out-of-state tuition, and a waiver of a portion of in-state tuition, if the number of work hours exceeds 10 per week. The third category of support is a fellowship provided by governmental agencies or other sources. The fourth category is based on demonstrated financial need. Financial assistance based on financial need is administered by the Office of Student Financial Aid, (<http://nau.edu/finaid/>; P.O. Box 4108, Flagstaff, AZ 86011-4108; 928-523-4951), with programs described in a brochure titled Financial Aid, available from that office. For all kinds of support, formal offers of assistance are made only after the student is admitted into the graduate program.

Research assistantships for students in the School of Forestry are available from two sources: 1) a variable number of assistantships are supported by funds provided to the School from the Bureau of Forestry Research, and 2) a variable number of assistantships may be available through externally supported research grants. In both cases, assistantships are awarded to individual faculty members who are responsible for selecting students. Criteria for selecting a student for an assistantship may vary among faculty members, but must include a high likelihood of excellent academic performance and ability to conduct independent research of high quality. Inquiries about the availability of assistantships should be made to the Graduate Coordinator and to faculty doing research in the area in which the student is interested.

All half-time assistantships include a commitment of 20 work hours per week, and a course load of 9-12 credit hours per semester (note exceptions under "Credit Load" section). All graduate assistants are required to pay the portions of in-state tuition and other registration fees that are not waived as part of the assistantship. Students may receive scholarships to cover tuition in addition to the assistantship stipend. In addition, assistantships may occasionally be awarded at less than the half-time rate depending on the needs of a research project and the availability of funds (e.g., Peace Corps Master's International assistantships, see Chapter 6 – Master of Forestry). Graduate students who receive half-time assistantships are not permitted to have employment outside the School of Forestry.

State-supported M.S. Research Assistantships are typically limited to two years. There is no specific limit on the duration of externally funded M.S. Research Assistantships. State-supported Ph.D. assistantships are typically limited to four years. However, only students who make good progress in the first year of their program will be considered for continued support. There is no limit on the total number of years of support for Ph.D. assistantships funded by external grants. The duration of support for assistantships funded by external grants will depend on the student's performance and the availability of funds. In addition, assistantship support may be withdrawn at any other time that a student's overall performance is judged inadequate by the Major Professor, following failure to improve performance after a performance evaluation.

CHAPTER 10 - RESEARCH ASSISTANT EXPECTATIONS

Graduate research assistants are expected to demonstrate qualities of professionalism and academic leadership beyond those normally expected of other graduate students. A graduate assistant is expected to remain in good academic standing and make satisfactory progress toward a graduate degree.

This includes:

1. A minimum cumulative GPA of 3.00.
2. No more than six hours of grade C.
3. A grade of B or better in the fifteen credit hours of emphasis area courses.
4. Completion of at least nine hours of credit each academic semester.

In addition, all Graduate Assistants must attend in their first semester of employment: a) the University Graduate Assistant Orientation. This orientation is designed to familiarize Graduate Assistants with the goals of the University and the Assistant's role in achieving these goals. b) NAU's Preventing Workplace Harassment training. This is an online training course available at <http://training.newmedialearning.com/psh/narizonau/index.htm>.

In addition to the above university-wide expectations for graduate assistants, the School of Forestry has established the following conditions of support for Graduate Research Assistants:

1. The Major Professor has control over the Graduate Research Assistant's work schedule. Requests for assistance from a graduate student should always be routed through the Major Professor.
2. Graduate Research Assistants are expected to work an average of 20 hours/week (half-time appointment) with the primary objective of conducting their thesis or dissertation research. The work schedule may vary but often will include many more hours during the summer.
3. Students who receive research assistantships provided to faculty members through external grants are typically employed to perform research or other work specified in the grant. This may involve assisting the faculty member with data collection, data analysis, and writing reports so that the faculty member can meet their obligations to the granting agency. In many cases, the work done by the student may be an important component of their thesis or dissertation research. However, the student's use of such data for his or her research must be approved by the faculty member responsible for the research. Further, such use of data does not relieve the student of the obligation to provide data, reports, or other products to the faculty member responsible for the research. Faculty members and their students supported by externally funded assistantships should agree to the student's responsibility to the project and the use of project data before initiation of any work by the student.
4. Graduate Research Assistants working at the half-time level (20 hours per week) are not permitted to have employment outside the School.

5. Graduate Research Assistants are expected to be self-motivated and work with minimal supervision from the Major Professor.
6. At the discretion of the Major Professor, Graduate Research Assistants may be required to help on other graduate student and faculty projects.
7. Graduate Research Assistants may occasionally be asked to assist on field trips or in laboratory exercises and present appropriate lectures in their field of study as requested by the Major Professor.
8. Graduate Research Assistants may occasionally be asked to assist in recruitment efforts such as Career Days with approval of the Major Professor.
9. Graduate Research Assistants are expected to become the local expert in their field. They should know as much or more about their field than the Major Professor or any other faculty.
10. Graduate Research Assistants are expected to be members of and participate in professional organizations.
11. Graduate Research Assistants are expected to publish the results of their thesis or dissertation research. A draft manuscript may be required before completion of the degree, depending on the Major Professor's requirements. Within the conventional ethical standards for determination of senior authorship, the Major Professor shall have the right to assume senior authorship and submit for publication any manuscript not completed by the student within one year of graduation.
12. After completion of all required course work except dissertation, a resident doctoral graduate student on half-time assistantship may petition to register for six credit hours a semester. Such a petition should be approved by the Graduate College and be endorsed by the Faculty Advisor and the Executive Director of the School of Forestry.

The student's Major Professor will determine whether the student has satisfied the above conditions.

Written evaluation by the Major Professor of the performance of each Graduate Assistant is required for each fall and spring semester using the Graduate Assistant Evaluation Form (Appendix, or <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>)

CHAPTER 11 - STUDENT'S ROLE IN THE SCHOOL

A graduate student occupies a special place in the School and the University. Graduate students are in many ways closer to the faculty than to undergraduate students. Thus, high expectations exist for responsibility, honesty, and professional behavior at all times. These qualities are developed and observed through interactions with faculty, other graduate students, and visiting scientists, dissertation research, participation in seminars, attendance at departmental seminars, and attendance and presentation of papers at scientific meetings. Evaluation concerning a student's professional competence and ability to interact with people is based on the student's participation in these diverse activities.

Students carry significant responsibilities in School teaching and research. Many are employees of the School, University, and State, and are representatives of the School on and off campus. Therefore, graduate students are expected to exhibit high professional standards, to be knowledgeable about School affairs, faculty and student activities, and in general conduct themselves in a professional manner.

Graduate students are encouraged to join and participate in the activities of appropriate professional societies. The benefits of membership, including journals and newsletters, are generally available to students at reduced rates.

There are many informal opportunities to learn from fellow students with experience from other parts of the United States and the World. One can learn a great deal by helping others, sharing work efforts, and studying together. Cooperation and social interaction with fellow students are strongly encouraged.

Nearly all of our activities entail the use of facilities, equipment, and operational budgets provided through State and Federal Governmental funds. Our use of State vehicles, which are clearly marked "For Official Use Only," is an especially sensitive and obvious area of concern. Anyone using State or University property for reasons other than those intended is liable for legal prosecution and/or dismissal. Telephones, copy machines, postage, vehicles, etc... may not be used for personal reasons. If there is doubt about the difference between official and private actions, check with your Major Professor.

Common courtesy requires that students ask permission before using facilities or equipment not already assigned to their project. Although some equipment is kept in common storage areas, it may well be considered the "property" of a specific research project, laboratory, or teaching area. Requests for equipment should be directed to the School of Forestry equipment manager. If that individual is not available, talk to a faculty member whose interests might involve those materials. All equipment should be signed out and returned in clean working order. Report any problems to the equipment manager so that they can be corrected.

Office space will be provided to all graduate students if possible. If space is limited, first priority is given to graduate students who are employed by the School of Forestry (e.g., research or teaching assistantships, other sources of financial support that clearly benefit the School) based on seniority. When all funded students are allocated office space then non-funded students may

be assigned space on a seniority system. Full-time research associates, technicians, or post-doctoral researchers may be placed in the graduate student areas if space is not available elsewhere.

It is the responsibility of the Major Professor to notify the Executive Director of the School of Forestry of the impending arrival of new students or the departure or return of old ones. Time of such notification is used to establish precedence within each priority level. Once assigned a desk, the student is expected to utilize it to the fullest. Space is a scarce resource. Infrequently used desks will be assigned to another student.

Appropriate keys are issued to students by the Executive Director of the School of Forestry upon written request by the Major Professor. Security demands that you safeguard keys issued to you and not lend them to others. It is illegal to duplicate university keys. Also, students should be very conscious about locking doors when they enter the building or laboratories outside of general business hours.

CHAPTER 12 - ACADEMIC CONDUCT OF GRADUATE STUDENTS

Graduate research should entail the generation of original, truthful information. Academic misconduct includes any of the following deceptive practices:

- Falsification of data: the intentional and unauthorized altering or inventing of any information or citation, including the purposeful omission of conflicting data with the intent to falsify.
- Plagiarism: knowingly representing the works or ideas of another as one's own.
- Misappropriation of others ideas or data.
- Misrepresentation of academic credentials.

Allegations of academic misconduct should be brought immediately to the attention of the Major Professor and the Executive Director of the School of Forestry. The Major Professor and Executive Director of the School of Forestry shall immediately conduct a preliminary investigation to ascertain the legitimacy of the alleged misconduct. Allegations of misconduct that are substantiated at this level shall be reported to the Graduate College for appropriate University level action.

CHAPTER 13 - GRIEVANCE AND APPEAL PROCEDURES

Students with significant complaints about any aspect of their education in the School of Forestry first should attempt to resolve the issue informally. Examples of informal resolution are addressing such complaints first directly to the person causing the grievance, second to the student's Major Professor, and third to the Graduate Coordinator, and next to the Executive Director of the School in order to reach a settlement within two weeks if possible. When none of the above attempts are successful, the student should follow the formal grievance procedures established by the University and described in the University Student Handbook (<http://nau.edu/student-life/Student-Handbook/>) and Graduate College policies (for example, <http://nau.edu/GradCol/Student-Resources/Succeeding/Policies/>).

Grade appeals will be treated as described in the University Student Handbook (<http://nau.edu/student-life/Student-Handbook/>).

APPENDIX A: SCHOOL OF FORESTRY GRADUATE STUDENT FORMS

(Available at <http://nau.edu/CEFNS/Forestry/Student-Resources/Graduate-Handbook/>)

Form 1	Recommendation for Graduate Study
Form 2	Report On Final Examination for M.F. Degree
Form 3	Ph.D. Student Progress Evaluation Report
Form 4	Ph.D. Student Teaching Evaluation
Form 5	Report on Results of Written Comprehensive Examination
Form 6	Report on Results of Oral Comprehensive Examination
Form 7	Graduate Assistant Evaluation
Form 8	Approval of Outside-NAU Master of Science Thesis Committee Member
Form 9	Remedial Course Plan

Graduate College forms are available at <http://nau.edu/GradCol/Student-Resources/>, and at <http://nau.edu/GradCol/Student-Resources/Theses-and-Dissertations/>.

Form 1 Recommendation for Graduate Study

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

Last Name

First Name

Middle Name

Please keep your current address on file with NAU: Log in to LOUIE at <http://www.nau.edu/louie>

Please read the following carefully before issuing or completing this form:

TO THE CANDIDATE: Please check one of the following options before you send or give this form to the person recommending you. This form will not be accepted if you fail to designate the option of your choice or fail to sign below.

PLEASE
CHECK
ONLY
ONE
OPTION

- NON-CONFIDENTIAL RECOMMENDATION.** The above-named person elects to keep this recommendation non- confidential recommendation may be shown to the candidate at his or her request.
- CONFIDENTIAL RECOMMENDATION.** I elect to keep this recommendation confidential and I waive all my rights of access to this recommendation, whether visual, oral or written, as provided in the Family Educational Rights and Privacy Act of 1974 and its amendments. I understand that this recommendation will not be available for my inspection now or in the future.

Date: _____

Candidate's Signature and Date (Must be signed to be valid)

TO THE RECOMMENDER:

The person whose name appears on this form wishes to ask you for a recommendation regarding his or her qualifications for graduate study in forestry. Your honest and careful statement and evaluation will be appreciated. Please rate this applicant in comparison with other students of the same age and position.

Please check appropriate box for each category	No Basis for Judgment	Lower Half	Upper Half but not Upper 25%	Upper 25% but not Upper 2%	Upper 2%
Native Intellectual Ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Breadth of General Knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initiative and Resourcefulness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interest in Their Field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral Expression Ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Written Expression Ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to Work with Others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emotional Maturity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Promise as a Teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Promise as a Researcher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Independence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In what capacity do you know this person _____ and for how long? _____
 Please attach a letter, or use the space below for additional comments.

(Type or print your name)

(Title or position)

(Signature)

Date _____

Your Employer _____

Mail Completed form to: Coordinator of Graduate Programs
 School of Forestry
 P.O. Box 15018
 Northern Arizona University
 Flagstaff, Arizona 86011

Form 2 Report On Final Examination For Master of Forestry Degree

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

Title of Professional Paper:

Program:

M.F. (Non-Thesis)

For the Master of Forestry degree, the professional paper will serve as the written comprehensive exam required under the "Comprehensive Examination Plan" for Master's degrees at NAU.

Vote of Committee: **Passed** _____ **votes**
 Failed _____ **votes**

2/3 majority of the major professor and readers required to pass.

Committee Member's Signatures

	Name	Signature	Date
Program Committee			
Major Professor:	_____	_____	_____
Readers:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
Graduate Coordinator:	_____	_____	_____
Exec Director - School of Forestry:	_____	_____	_____

Web Publish Professional Paper:

Graduates may elect to have their M.F. professional paper published to the School of Forestry Library Web (<http://nau.edu/CEFNS/Forestry/Faculty-and-Staff/Library/>).

- YES – Publish my Thesis/Paper to the web.**
 NO – Do Not publish my Thesis/Paper to the web.

Distribution: Major Professor
 Graduate College
 Student

School File

Form modified: January 6, 2012

Form 3 Ph.D. Student Progress Evaluation Report

(To be submitted on an annual basis)

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

Last Name

First Name

Middle Name

NAU ID

I. COURSEWORK

Yes

No

A. Have courses in Program of Study been completed as scheduled?
If not, explain reasons for non-completion, and detail the steps anticipated to complete the courses.

Yes

No

B. Is performance in coursework satisfactory?
If not, explain steps anticipated to correct unsatisfactory performance.

C. If completion or satisfactory performance issues were noted at the last evaluation, discuss the progress on the plan(s) to address these issues.

D. Comments

Satisfactory

Unsatisfactory

E. Overall Coursework Progress Evaluation

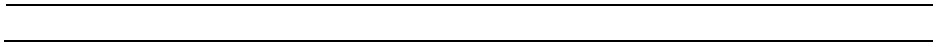
II. RESEARCH AND DISSERTATION PREPARATION

Yes

No

A. Has performance and progress on the dissertation research been satisfactory?
If not, detail the steps anticipated to achieve satisfactory progress.

B. If completion or satisfactory performance issues were noted at the last evaluation, discuss the progress on the plan(s) to address these issues.



II. RESEARCH AND DISSERTATION PREPARATION (Cont'd)

C. Comments

Satisfactory Unsatisfactory

D. Overall Research and Dissertation Preparation Evaluation

III. OVERALL EVALUATION

Satisfactory Unsatisfactory

A. How would you rate the candidate overall?

Signatures

Program Committee	Name	Signature	Date
<u>Major Professor:</u>	_____	_____	_____
<u>Committee Members:</u>	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
<u>Graduate Coordinator:</u>	_____	_____	_____
<u>Exec Director - School of Forestry:</u>	_____	_____	_____

Distribution: Major Professor
School File
Student

Form modified: May 3, 2005

Form 4 Ph.D. Student Teaching Evaluation

**School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018**

_____ Last Name	_____ First Name	_____ Middle Name
_____ NAU ID	_____ Evaluation Date	

Teaching is a crucial part of doctoral student education. The evaluation of teaching should be based on at least two classroom observations, preferably at widely separated intervals. Constructive criticisms should be given to the student during a personal meeting within a few days of each observation. In addition, each student should be evaluated by the classroom students using the Instructor Teaching Evaluations used by Forestry Faculty.

I. AREA EVALUATIONS

A. Knowledge of Subject Matter (organization, appropriate level, response to questions)

B. Demeanor, Appearance, Control of Class, Relationship with Students.

C. Examinations and Quizzes (appropriate level, coverage of material, ease of understanding)

B. Participation in Meetings, Preparation Sessions, and Completion of Out-of-Class Assignments.

II. OVERALL TEACHING EVALUATION

Satisfactory Unsatisfactory

Comments

Signatures

Program Committee	Name	Signature	Date
Major Professor:	_____	_____	_____
Evaluators:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
Student:	_____	_____	_____

Distribution: Major Professor
School File
Student

Form modified: May 3, 2005

Form 5 Report On Results of Written Comprehensive Examination

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

Last Name	First Name	Middle Name
NAU ID	Examination Date	

This evaluation is completed following the completion of coursework requirements as detailed in the School of Forestry Graduate Student Policies and Procedures Handbook.

Signatures

Committee Member Name	Signature	PASS	FAIL ¹
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>

¹ Committee members failing a student must attach a written explanation of reasons for failing grade.

Vote of Committee: **Passed** _____ **votes**
 Failed _____ **votes**
 2/3 majority of the committee members required to pass.

Additional Requirements (if any) and Justifications

Executive Director – School of Forestry	Date
---	------

Distribution: Major Professor
 Thesis Committee Members
 School File
 Graduate College
 Student

Form modified: May 3, 2005

Form 6 Report On Results of Oral Comprehensive Examination

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

Last Name	First Name	Middle Name
NAU ID	Examination Date	

This evaluation is completed following the completion of coursework requirements as detailed in the School of Forestry Graduate Student Policies and Procedures Handbook.

Signatures

Committee Member Name	Signature	PASS	FAIL ¹
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
_____	_____	<input type="checkbox"/>	<input type="checkbox"/>

¹ Committee members failing a student must attach a written explanation of reasons for failing grade.

Vote of Committee: **Passed** _____ **votes**
 Failed _____ **votes**
 2/3 majority of the committee members required to pass.

Additional Requirements (if any) and Justifications

Executive Director – School of Forestry	Date
--	-------------

Distribution: Major Professor
 Thesis Committee Members
 School File
 Graduate College
 Student

Form modified: March 1, 2008

Form 7 Graduate Assistant Evaluation

**School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018**

Last Name

First Name

Middle Name

Evaluation Date

Evaluation semester:

All Graduate Assistants employed by the School of Forestry should be evaluated by their Major Professor or Supervisor each semester with this form.

I. AREA EVALUATIONS

A. Academic performance:

B. Research performance (if appropriate):

C. Teaching performance (if appropriate):

D. Professionalism (e.g., demeanor, responsibility, punctuality, civility, participation in professional organizations):

II. OVERALL EVALUATION

Satisfactory

Unsatisfactory

SIGNATURES

	Name	Signature	Date
Major Professor:			
_____	_____	_____	_____
Major Professor:			
_____	_____	_____	_____
Student:			
_____	_____	_____	_____

I understand that my signature indicates that I have seen and discussed this evaluation with my Major Professor or Supervisor and received a copy. Students may attach written comments about the evaluation.

Distribution: Major Professor
School File
Student

Form modified: February 25, 2010

Form 8 Approval of Outside-NAU Master of Science Thesis Committee Member

**School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018**

If a member of the Master of Science committee is not a member of the NAU Faculty (regular or adjunct), attach to this form the individual's vita or resume and provide the information requested below. Submit the completed form to School of Forestry Graduate Coordinator and then Department Chair/Director for approval. The approved and signed form should be placed in the student's departmental file.

Student name: _____

Faculty advisor: _____

Thesis Title or topic: _____

Outside-NAU committee member's name: _____

Expertise related to student's thesis:

Form 9 Remedial Course Plan

School of Forestry
Northern Arizona University
NAU Box 15018 Flagstaff, Arizona, U.S.A. 86011-5018

- A. Forest Ecology and Biology; Minimum of 6 semester credit hours in the following subjects:** Topics include taxonomy, distribution, and ecological characteristics of trees and other important plants; physiology of trees, including metabolism and growth; basic and applied genetics; ecological concepts and principles, including structure and function of ecosystems; soil formation, classification, composition, and properties; silviculture, including methods of establishing and controlling the composition, growth, and quality of forest stands, including fire ecology and use of fire; water in forest ecosystems, including plant-water relationships, watershed condition and forest water quality; entomology and pathology, including the study of representative forest organisms and the application of integrated pest management; and wildlife and fish biology and ecology.

Course No./Title	Credit hours*	Grade	Term/Year	University/program

*Specify quarter or semester

- B. Management of Forest Resources, and Forest Resource Policy and Administration; Minimum of 6 semester credit hours in the following subjects:** This area of study integrates all aspects of forestry education. It provides the student with an understanding of the social, cultural, political, legal, economic, institutional, and historical influences on forestry. Topics should include policy development; administration; land and resource planning; budgeting; financial and personnel management; integrated forest resource management at stand-, system-, and landscape-scales, with consideration of wood, forage, water, wildlife, fish, recreation, cultural, educational and aesthetic benefits; forest engineering, harvesting, and utilization.

Course No./Title	Credit hours*	Grade	Term/Year	University/program

*Specify quarter or semester

C. Measurement of Forest Resources; Minimum of 3 semester credit hours in the following subjects: Topics include land measurement, geographic information systems, photogrammetry and remote sensing; sampling theory and methods; measurement of trees, forests, and forest products; wildlife habitat assessment; measurement of water yields and quality; assessment of air quality and of the aesthetic, cultural, mineral, range, recreation, and wilderness values of forests.

Course No./Title	Credit hours*	Grade	Term/Year	University/program

*Specify quarter or semester

Signatures

Student: _____ Date: _____

Advisor: _____ Date: _____

Graduate Coordinator: _____ Date: _____

School Executive Director: _____ Date: _____