

**NATURAL RESOURCES AND ENVIRONMENTAL STUDIES
GRADUATE PROGRAM MANUAL
COLLEGE OF SCIENCE AND MANAGEMENT**

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Distribution List

When this document is revised, changed sections will be circulated to the attached list, and then posted on the NRES Website:

1. All members of the NRES Graduate Program.
2. Registrar.
3. Executive Assistant - Registrar.
4. Dean, CSAM.
5. Executive Assistant, CSAM.
6. Dean, Graduate Programs.
7. Executive Assistant, Dean, Graduate Programs.
8. Provost.
9. Northern British Columbia Graduate Student Society.

NATURAL RESOURCES AND ENVIRONMENTAL STUDIES GRADUATE PROGRAM MANUAL

COLLEGE OF SCIENCE AND MANAGEMENT UNIVERSITY OF NORTHERN BRITISH COLUMBIA

Procedures of the NRES Graduate Program Committee stand in addition to UNBC policies and admissions standards as set by the Office of Graduate Programs. Refer to the current UNBC Calendar for these policies, and for the descriptions and requirements of NRES graduate programs.

I. NRES Graduate Program Committee

A. Composition.

Studies in the NRES Graduate Program, College of Science and Management (CSAM) are administered by the NRES Graduate Program Committee, under the authority of the Deans of the College of Science and Management and of Graduate Programs. The NRES Graduate Program Committee consists of one faculty member from each of the streams within the NRES Masters Degrees (Biology, Forestry, Environmental Science, Geography, Environmental Studies, and Outdoor Recreation, Conservation and Tourism), each selected by faculty supervising within the specialty area; one NRES Masters student and one NRES PhD student, elected by and from the body of graduate students within NRES; . The faculty representatives are to represent the interest of the College and of all members of the NRES Graduate Program.

Quorum is set at 50% of voting members. The Graduate Committee reserves the right to hold in-camera sessions exclusive of the graduate student representative. The Graduate Committee shall choose its Chair and Associate Chair from among its members.

B. Mandate.

The NRES Graduate Program Committee assists the College and the NRES Graduate Program by:

1. recommending and applying standards for admission to graduate studies in the NRES Graduate Programs and recommending students for admission to graduate school in the College;
2. maintaining and monitoring the integrity of academic standards of the NRES Graduate Program;
3. coordinating the development and maintenance of the NRES Graduate Program, such as new course and degree proposals, or changes to existing courses and degrees; and NRES policies;
4. ensuring scheduling of the required courses (NRES 700, 701, 703, 801, 802, 803 and 804) and consistent offering of other NRES 7XX courses to make these available for students during their degree tenure;

5. regularly reviewing the NRES Graduate Program, including methods of graduate student assessment and training and making recommendations to address overlaps in College and University curricula;
6. evaluating and ranking entrance scholarship/awards for the NRES Graduate Program;
7. making recommendations on striking sub-committees of the NRES Graduate Program, or other standing committees, to deal with specific issues related to graduate programs (e.g. PhD exams); and,
8. safeguarding the interests of graduate students and supervisors within the NRES Graduate Program and the College;

C. Meetings of the NRES Graduate Program

The NRES Graduate Program Committee will engage regularly with the members of the NRES Graduate Program, which is made up of all faculty members eligible to supervise students within any NRES graduate degree. Such engagement normally consists of the following:

1. Twice annually (normally once in the spring and once in the fall), the NRES Graduate Chair shall hold a General Meeting for all members of the NRES Graduate Program. At this meeting members will be presented with a summary of activities of the NRES Graduate Committee, including recommendations on admissions and other business conducted around students (i.e. changes to degree, changes of supervisors). In addition motions for changing the NRES Program, its degrees, etc., may be presented for ratification by the NRES Graduate Program.
2. In between General Meetings, motions regarding the NRES Graduate Program and its administration may be presented to the Program via an email vote.
3. Quorum for all in person or email votes is set at 30% of the total membership at the time +1. Unless quorum is questioned by a voting member, quorum will be presumed to have been reached.

D. Chair of NRES Graduate Program Committee's Responsibilities.

The Chair is responsible for the ongoing operation of the NRES Graduate Program, overseeing the mandates outlined above, and for issues related to enrolled graduate students and faculty supervising graduate students within NRES degrees. The Chair shall act as the liaison between the graduate program and the NRES Institute (NRESi), by serving as a standing member of the NRESi Steering Committee (the Chair may appoint a designate). The Chair will also represent and report on the graduate program CSAM College Council when required, and represents NRES in other fora which require or solicit such representation. The Chair is also responsible for recommendations to the Dean of Graduate Programs on admissions, supervisory committee membership, Programs of Study and Progress Reports for NRES graduate students, as well as other requests (such as changes to degree or supervisor).

The Chair, or designate, oversees the PhD Candidacy Exams, including informing students, supervisors and committee members of process and timelines, instructions for setting and

preparing for examinations, and coordination of scheduling and grading of examinations, and reporting on outcome to the Dean of Graduate Programs.

The Chair shall normally serve for a 3-year appointment, with the option to apply for up to two 1-year renewals. These renewals will be subject to approval by the current NRES Graduate Program Committee. For both initial appointment and renewals, the NRES Graduate Program Committee will submit to the NRES Graduate Program their selection for ratification. The total term in office shall not exceed 5 years as Chair. The Chair will normally serve as Associate Chair prior to assuming the role of Chair

In recognition of the nature of the duties of the Chair, the Provost's Office has agreed to an annual 5 SCH course buyout for the Chair. Funds from the Provost's Office are annually made available to the Chair's Program Chair for their use. Funds are deposited annually in an account with Chair's signing approval from Provost. The Program Chair responsible for the teaching workload for the NRES Chair, may request transfer of funds.).

The Chair of the NRES Graduate Program Committee annually receives a fund of \$2000 from the Provost's Office for support of the Graduate Program (i.e. social events, photocopying and other needs). The Chair has full signing authority.

E. Associate Chair of NRES Graduate Program Committee Responsibilities

The Associate Chair will assist the Chair in achieving the mandates outlined above in the ongoing operation of the NRES Graduate Program. The Associate Chair will assume the responsibilities of the Chair during the Chair's absence. The Associate Chair will also aid in supporting NRES Graduate Student activities (annual grad orientation, Fall Icebreaker event, Annual NRES Poster session etc.).

The Associate Chair will normally serve for up to a 2-year term, with the option to assume the role of Chair after 1-year into the term. The Associate Chair may request renewals of their appointments at the end of their term. The Associate Chair does not automatically have to become Chair.

II. Applications and Admissions.

A. NRES Graduate Program Committee Responsibilities

The primary responsibilities of the NRES Graduate Program Committee with respect to admission recommendations are:

1. safeguarding the interests of students and supervisors;
2. assuring that students have knowledge of their rights and responsibilities as graduate students at UNBC;
3. assuring that NRES and CSAM admission criteria are met.

B. Application Materials.

Application material for NRES Graduate Programs is located on the Graduate Programs website (<http://www.unbc.ca/apply/graduate>). Under each NRES Degree is a list of required application

material. For the Master degrees, this consists of: an application form, an Assessment report (to be completed by three referees, two of whom should be able to speak to the student's academic and research capacity and hold an advanced academic degree such as a Masters, PhD or JD), a CSAM TA Application form, and NRES Checklist and CSAM Graduate Student Funding Information sheet. On these pages is also included a link to potential supervisors, and a Notice to Graduate Applicants in the College of Science and Management. The NRES Checklist indicates the supplemental material required of PhD applicants (sample of written work) and international students (e.g. TOEFL/IELTS scores). Links to the Calendar descriptions for each degree are also found on these webpages.

C. Application Procedure

Applications and accompanying documents are submitted directly to the Office of the Registrar. On-line system currently closes after the Application Deadline – December 15 for the following May and September entry, and May 15 for the following January entry. Applications submitted after the deadline must be done on paper; links to that process are on the Office of Registrar's webpage.

Original documentation is kept on permanent record in the Office of the Registrar while copies of all documentation are kept on file for review in the Dean of CSAM's office for one year. If the student is found to meet academic standards for admission to graduate studies in NRES, and a specific prospective supervisor is identified in the application, that person is contacted to view the files and to decide whether or not to submit an email indicating their intent to supervise.

If no supervisor is identified in the application, or the identified prospective supervisor decides, having been given reasonable time to view the file and make contact with the student (typically two to three weeks maximum) that they do not wish to supervise the applicant, a summary of the applicant's GPA and research interests is sent to all faculty members within the NRES Graduate Program. The completed file will be available for detailed review by faculty members in the Dean of CSAM's office.

The file will be held open for consideration for at least one month. At this point, NRES Graduate Program Chair will sign off as "no supervisor available" and the file will be returned to the Office of the Registrar.

Faculty members are encouraged to directly contact potential graduate students, but must not make offers of admission to them.

D. Application Deadlines and Processing of Late Applications

The NRES Graduate Program Committee will accept applications for admission in September, January and May semesters. Deadlines for graduate applications to the University of Northern British Columbia are contained in the current UNBC Graduate Calendar. The final deadline for late applications for admissions to NRES graduate programs for admission is July 15 for September admission and October 15 for January admission. Late applicants will be considered only when all of the application material is received by the Office of the Registrar by the late application deadlines. All outstanding applications will be closed at that time.

Note that international students pursuing late applications may not have sufficient time to receive student visas from their native country. Faculty members wishing to support international students should check with the Registrar's office to determine average time required from offer of admission until visas are in place for their country of origin. Normally, International applicants from outside the USA should plan on applying six months prior to intended start date.

Normally, full consideration is only given to applicants that have met UNBC graduate application deadlines (i.e. eligibility for internal UNBC scholarships and awards). If, however, a faculty member wishes to consider a late applicant, then they will first make their case to the Chair of the NRES Graduate Program Committee. If the case is reasonable with respect to the quality of the applicant relative to applicants that have applied on time, then the Chair will make a request to the Registrar's Office to process the application.

Once the application is complete (letters of reference, funding form, TA form, permission of administrative chair, etc.) the NRES Graduate Program Committee will evaluate the application as outlined below. If the committee recommends admission to the Dean of Graduate Programs then this letter will be forwarded to the Dean of Graduate Programs for consideration.

E. Evaluation process.

The NRES Graduate Program Committee will regularly consider completed applications for admission. An application will be considered complete when the Office of the Registrar has received the following:

- Application Form/Fee
- Official Transcripts
- At least 2 out of 3 reference letters (both of whom should have the ability to assess potential success, i.e. holding a Master's degree for an applicant to a Master's program or a PhD for an applicant to the PhD)
- Statement of intent by the student
- CSAM Graduate Student Funding Information sheet, which has been signed by both the applicant and prospective supervisor
- Teaching Assistant Application form
- TOEFL score or IELTS score [for students who have English as other than a first language]
- Support letter/email from the intended supervisor
- Support letter/email from the intended supervisor's program chair
- Writing sample for PhD applicant

F. Admission Criteria

Admissibility will be decided by the NRES Graduate Program Committee on a case-by-case basis, taking into account such criteria as academic and work place experience, letters of

reference, statements of interest, academic standing (i.e., GPA), suitability of the student and student's background for the proposed research (e.g., relevant field and/or laboratory experience, interest in the specific topic), and other criteria as may be established.

Current UNBC GPA admission standards (3.33 for admission to PhD programs; 3.00 for admission to Master's degrees) may be waived in exceptional cases where other academic or workplace achievements provide evidence of outstanding ability. The exceptional cases for Master's degree applicants are outlined in Section 1.3 of the Academic Graduate Calendar and, for PhD degree applicants, the exceptional cases are outlined in Section 7.1. For these circumstances, if the NRES Graduate Committee supports the admission, the NRES Chair will submit in writing to the Dean of Graduate Programs rationale for the admission of the applicant.

While not mandatory, the inclusion of GRE scores may be particularly helpful in evaluating applicants whose transcripts cannot be easily compared to Canadian admission standards or in those cases where students may have completed their formal course work many years previously, e.g., applications from mature students.

Final acceptance of candidates in graduate programs in NRES will require acceptance for graduate supervision by a regular faculty member who is a member of the NRES Graduate Program. A faculty member's selection of a graduate applicant will normally be honoured, provided the applicant meets admission standards.

G. Acceptance

Admission to graduate studies in the NRES Graduate Program will be subject to the recommendation of the NRES Graduate Program Committee to the Dean of Graduate Programs. Recommendation for admission of each student by the committee will be based on academic ability, availability of an appropriate supervisor and both financing (if applicable) and space, subject to the approval of the Administrative Chair of the proposed supervisor. The Dean of Graduate Programs reserves the right to not accept any admission recommendation.

H. Pre-Entry Program Policy

Students not meeting UNBC entrance requirements may complete a pre-entry program (PEP) before they can be admitted as graduate students in the NRES Graduate Program; see Section 1.7.2 of the Graduate Calendar: When admission requirements are not satisfied and upon the recommendation of the Program concerned, the Dean of Graduate Programs may approve a pre-entry program of undergraduate course work totaling at least 12 credit hours of upper division courses. An average of not less than 3.33 (B+) must be achieved in the course work, and no course must be completed at a level below 2.67 (B-). Courses taken for a pre-entry program may not be used for credit towards a graduate degree. Students approved by the Dean of Graduate Programs for a pre-entry program are guaranteed admission to the appropriate Graduate Program upon successful completion of the recommended courses (2016/17 Calendar).

For prospective NRES Graduate students, a PEP will normally consist of a minimum of 12 credits of 300- and 400-level courses taken over one semester. Consideration can be given to post-degree work taken and to the possibility of completing a PEP over more than one semester,

but the entire PEP will then consist of more than 12 credits¹. The terms of admission (including time period and courses) are to be established by the Dean of Graduate Programs upon recommendation from the NRES Graduate Program Committee as to the appropriateness of the proposed PEP for the particular student. The terms of the PEP must be transmitted to the student in their letter of notification by the Office of the Registrar.

With respect to the PEP, the NRES Graduate Program Committee is filling the role of the individual programs within the College. As such, if the NRES Graduate Program Committee does not believe that the proposed PEP is appropriate, they will forward their recommendation to the Dean of Graduate Programs.

The main purpose of the PEP is to ensure that students successfully completing a PEP are capable of succeeding in their proposed graduate program. Therefore, the requirements for a PEP will vary considerably depending on the student's background relative to their chosen field of study, their previous academic record, and perhaps even relevant professional experience since completing their undergraduate degree. As such, the NRES Graduate Program Committee cannot evaluate the student relative to rigid guidelines, but rather relative to what the NRES Graduate Program Committee perceives to be evaluated, given that the prospective student does not meet the admission guidelines outright. For a student that is undertaking graduate study on a full-time basis, the NRES Graduate Program Committee will expect part of the evaluation to be whether or not the student can carry a full-time load. There may be occasional circumstances in which the load, per se, is not the predominant issue for a PEP (e.g., a mature student, with significant professional experience for whom the concern is whether or not they can now succeed in an academic environment).

When evaluating the appropriateness of the individual courses in the proposed PEP, the NRES Graduate Program Committee will consider several factors:

- a. Has the student already taken a similar course before?
- b. Is the course relevant to the intended field of study?
- c. Are the majority of the courses being taken from impartial faculty (i.e., most courses not taken from the intended supervisor)?

Consequently, the NRES Graduate Program Committee will be unable to evaluate a PEP without an indication of what graduate work the student will be undertaking at the successful completion of their PEP. If the student's background is significantly different from their intended field of study, the NRES Graduate Program Committee should be comfortable that the proposed PEP will suitably prepare the student to succeed in their graduate program. In those cases in which a

¹ Counting of previous course work must be assessed on a case by case basis, and this is the responsibility of the Dean of Graduate Programs upon the recommendation of the NRES Graduate Program Committee. Counting of previous course work in a PEP is an exceptional circumstance, but is warranted if there is demonstration that: 1) the previous course work is appropriate to a PEP in both content and workload; and, 2) that at least one semester of the PEP is done under "full load" (Note: this is not a requirement of the PEP under the University Calendar, it is an NRES guideline). The intent of the full load requirement is to determine if the student can attain a sufficient average under conditions similar to qualified undergraduates who are competing for graduate student spaces. The definition of full load will vary, however, depending upon the individual case. For example, for a parent caring for young children, or a person working full time, full load may be assessed at less than 12 credits per semester. This allows the flexibility to spread the PEP over more than one semester.

student has performed poorly as an undergraduate AND is undertaking a major switch in their disciplinary focus, the NRES Graduate Program Committee would expect the student to complete a two-semester PEP that would exceed the minimum 12 credit hours of upper division work.

I. Rejection.

If the indicated supervisor does not support the application, and advertisement to the general NRES Faculty of the student's file does not result in a supervisor supporting the application within the deadlines outlined in II.B. the application will be deemed to not be under further review in the NRES Graduate Program. The NRES Graduate Program Committee may alternatively direct applicants to other Programs where appropriate or indicate no supervisor available to the Dean of Graduate Programs. The NRES Graduate Program Committee recognises that applicants may be under simultaneous review in several Programs.

J. Acceptance to the PhD (NRES) from a Master's Degree

Rationale: Entrance to the PhD program is governed by Section 7.1

In addition to these regulations, the NRES Graduate Program Committee recognizes the following clarifications and additional requirements:

1. That the application be considered complete when it contains:
 - a) a UNBC Application Form/Fees;
 - b) official transcripts from all post- secondary institutions attended;
 - c) a Statement of Intent (no more than 1000 words), indicating the student's research interests, possible future career aspirations, and perceived fit within the NRES Graduate Program / College mandate and research directions;
 - d) a recent Curriculum Vitae;
 - e) at least two of three letters of reference (including two from faculty members familiar with the prospective student's academic work);
 - f) a CSAM TA Application;
 - g) CSAM Graduate Student Funding Form; and
 - h) meets language requirements outlined in Section 1.1 of the Graduate Calendar
2. That the student provides evidence of potential for independent research, in the form of publications, reports, theses, presentations at conferences or scholarly meetings, etc.

NOTE: Meeting all admission criteria is not a guarantee of acceptance into the Ph.D. Program.

If the student is admitted to the doctoral program, s/he will have to fulfill the requirements and evaluation process for doctoral students in the NRES Graduate Program.

K. Acceptance to the PhD (NRES) from a Bachelor's Degree

Entrance to the PhD program without a Master's degree is governed by the information in the UNBC Graduate Calendar Section 7.1.3

In addition to this regulation, the NRES Graduate Program Committee recognizes the following clarifications and additional requirements as outlined in Section 7.1.4:

1. That the cumulative GPA of at least 3.67 (A-) for the baccalaureate be calculated over the last 60 credits.
2. Under Section 7.1.4, an application to transfer from the Master's program to the PhD (NRES) be made no earlier than 2 semesters and no later than 5 semesters (including the May semester) after admission to the Master's program.
3. That the student must have completed at least 9 credit hours of academic course work at the graduate level at UNBC.
4. That the Master's student applying for transfer to the Doctoral program makes a formal request to the NRES Graduate Program Committee that includes:
 - a) Statement of Intent (no more than 1000 words), indicating the student's research interests, possible future career aspirations, and perceived fit within the NRES Graduate Program / College mandate and research directions, and outlining how the proposed Doctoral research project relates to research conducted to date, and
 - b) a recent Curriculum Vitae.
 - c) provides evidence of potential for independent research, in the form of publications, reports, theses, presentations at conferences or scholarly meetings, etc. the intended PhD supervisor of the student provides a letter supporting the transfer, outlining reasons the candidate should be admitted to the Doctoral program. The letter should include information on funding of the student, and must be co-signed by the Administrative Chair of the supervisor. That a letter be provided from the current Master's supervisory committee indicating support for transfer of the student to the Doctoral program.

NOTE: Meeting all transfer criteria is not a guarantee of acceptance into the PhD Program.

NOTE: Scholarships, including UNBC entrance awards, may not be transferred; check with Financial Aid and Awards office.

If the student's case for transfer is approved by the NRES Graduate Program Committee and the Dean of Graduate Programs, s/he will be admitted to the doctoral program, and will have to fulfill the requirements and evaluation process for doctoral students in the NRES Graduate Program.

NOTE: A student who transfers to a PhD may choose to return to the Master's level under Section 7.1, without academic penalty, provided that work to date has met the standards of the Master's program and the candidacy examination has not been attempted.

III. Residency Requirement

As part of their degree requirements, all students registered within the MSc, MA, MNRES and PhD – NRES are required to complete two semesters of residency by attending courses and other events on any UNBC campus. Upon application to the NRES Graduate Program Committee, this requirement may be waived. These two semesters do not have to be contiguous.

IV. Financial Support of Students.

A student's application for admission to NRES Graduate Program will not be considered complete until the student and proposed supervisor have discussed personal and research funding

of the student's graduate program. The financial support discussion is documented on a "CSAM Graduate Student Funding Information Sheet" which is part of the application package. This form must be signed by both the student applicant, and proposed supervisor.

A. Teaching Assistantship Awards.

Teaching Assistantships are awarded semester-by-semester, and must be applied for by all interested graduate students. They are awarded upon the basis of teaching ability. The purpose of Teaching Assistantships is to: 1) provide financial assistance to graduate students; 2) enhance the curriculum vitae of graduate students with valuable teaching experience; 3) expose students to, and develop students as, colleagues in teaching; and 4) provide critical assistance for teaching. All graduate teaching assignments within the NRES Graduate Program will be filled before teaching assistants are assigned to marking roles.

Allocation of all TA resources to courses will be done by the Dean of CSAM in consultation with the CSAM College Management Team. The assignment of individual students to positions is the responsibility of the Administrative Chairs within CSAM. TA positions will be assigned competitively to interested graduate students who are "in course" on a semester-by-semester basis. The primary criteria for assigning TA positions are the match between undergraduate teaching needs of the College and the teaching abilities/experience of an applicant. Compassionate reasons (e.g. funding cut) may also be considered. The NRES Graduate Program Committee has no role in this process.

B. Graduate Teaching Assistantships versus Graduate Student Assistantships

One form of support for graduate students is to employ them in the assistance of course delivery. As such, graduate students can be hired as either graduate teaching assistants or as graduate student assistants depending on the role that they play in a particular course. The following information, compiled from various forms and information passed by the CSAM College Council, is provided here to help clarify the differences between teaching assistants and student assistants.

Criteria for Teaching Assistants (TA):

- the teaching assistant must be a graduate student;
- there must be a *teaching* component to the duties in each course to which the graduate student is assigned – *teaching is distinct from marking; and is usually taken as instruction in front of students in either lectures, labs, or tutorial;*
- the graduate student must have submitted a one-semester TA application to the Office of the Dean of CSAM;
- the graduate student's qualifications must match teaching need for the assigned course; and
- the assigned duties may entail additional forms of teaching support or service (e.g., marking in a course to which the TA is assigned a teaching component)

Within the College, three types of student assistant (SA) appointments are possible: Undergraduate student assistant; graduate student assistant; and non-student student assistant.

Although only one form applies to graduate students, all are presented here for clarity.

Criteria for Undergraduate SA:

- must be a registered student
- intended mainly for marking
- not defined by level of education

Criteria for Graduate SA:

- must be a registered graduate student
- did not apply for or did not receive a Teaching Assistantship
- contract for marking only or other forms of non-teaching support or service

Criteria for non-Student Assistant:

- not a UNBC student
- there is no UNBC graduate or undergraduate student available
- only hired when qualifications match program needs

C. UNBC Graduate Scholarships

UNBC Graduate Scholarships are annual awards provided to incoming graduate students in recognition of academic excellence. Students should contact the Financial Aid and Awards Office for an updated list of Graduate Scholarships available to UNBC students.

D. Information on how to pay a graduate student by stipend, rather than salary

It is possible to place graduate students on a stipend (T4A income, rather than T4 income). Below are the procedural details:

1. Pick up from Finance a form entitled *A Requisition for disbursement of scholarships, fellowships and research grant payments*.
2. Fill out the information about your student. You can arrange for your student to be paid monthly, biweekly, or as a lump sum.
3. **FUND** is your grant or account being used to pay the stipend, **ORG** is the code for your program, and **ACCOUNT** is 6141. Under amount, make it clear that this is the total amount over the time period specified at the top of the form.
4. Check off **Fellowship Income (Graduate Student)**. For income tax purposes this will be T4A income.
5. Deliver it to Finance.

V. Supervisory Committees.

A. Formation.

A supervisory committee must be formed for each student by the end of the first semester of study.

For a Master's student, this committee will consist of the student's supervisor and at least two other members, one of whom is an external member from outside the degree stream of the student. It is recommended that the external member come from a different discipline area.

For a PhD student, the supervisory committee will consist of the student's supervisor and three others, one of whom must be from outside the NRES Graduate Program. Additional external committee members may be appointed, subject to needs of the discipline or speciality in which the student is working.

The membership of the student's committee and the Program of Study must be submitted to the Dean of Graduate Programs in the first semester of study, generally after the first committee meeting using the appropriate form supplied by the Office of the Dean of Graduate Programs. These forms must also be signed by the Chair of the NRES Graduate Program Committee, before being submitted to the Dean of Graduate Programs.

B. The Supervisor

The graduate supervisor must be a full-time member of the NRES Graduate Program. Those faculty wishing to supervise a NRES graduate student must have applied to and been recommended for approval to the Dean of Graduate Programs as a supervisor within specific degrees and streams for the Master's degrees.

For a PhD student, the supervisor must be eligible to supervise PhD students (eligibility requirements are that a supervisor must have successfully supervised at least two Master's students in any academic institution). Adjunct Faculty may serve as co-supervisors, if the other co-supervisor is eligible to supervise within the NRES Graduate Program and approved by the Dean of Graduate Programs.

The NRES Graduate Program Committee shall maintain a list of eligible supervisors and the degrees within which they may supervise. This list will be updated annually.

C. Committee Meetings

The supervisory committee must meet at least once and preferably twice a year with the student. Meetings conducted by email (in which the student submits a written report on their progress and the supervisory committee indicates its assessment to the supervisor) are acceptable, but in person meetings are highly recommended where possible.

A NRES Progress Report must be completed at each meeting. The student's progress must be indicated as "Satisfactory", "Needs Improvement" or "Unsatisfactory" by the committee after each committee meeting on the **NRES Progress Report** available from the Office of Graduate Programs. If a "Needs Improvement" rating is indicated, the nature of the deficiency should be clearly indicated in the comments section, as well as what needs to be done to remedy this situation. A follow-up meeting should be held within 6 months to re-check on student progress. If a second "Needs Improvement" or an "Unsatisfactory" rating is indicated, a formal Continuance Review from the Office of Graduate Programs will be initiated. Following the Continuance Review, normally, another committee meeting must be held within two months to further evaluate the student's progress.

The student must sign the NRES Progress Report acknowledging its contents -- students may note their disagreement and reply separately to the Dean of Graduate Programs, but they must still sign the form. ..

The NRES Progress Report shall be forwarded to the Chair of NRES for signature and internal tracking, and will then be forwarded to the Dean of Graduate Programs. NRES students must submit a Progress Report between Sept 1 and July 30 each academic year, but those receiving scholarships from UNBC must submit these by early May in order to have un-interrupted continuation of funding in the new academic year (the following September).

The Office of Graduate Programs will send a message to students and faculty in April or May annually. Students entering in January or May Semesters will not be required to submit a full committee report by the July deadline, but supervisors should indicate they have satisfactory performance using a generic Masters/PhD UNBC Progress Report so that internal funding will be uninterrupted. They will be subject to the same regulation of submitting reports within the first full Sept 1- July 30 period within their period of study.

D. Supervisors' Leaving or Absence.

Supervisors who leave UNBC employment for any reason must appoint a co-supervisor who is a full time faculty member at UNBC and eligible to supervise within NRES (although temporary eligibility may be arranged at the discretion of the NRES Chair in consultation with the Dean of Graduate Programs). Supervisors who leave temporarily (sabbatical or leave of absence of more than a few months), must ensure that they can be contacted easily by email or telephone by the student AND by the NRES Chair (within a reasonable response time) or temporarily appoint another committee member as that contact person and so advise the student and the NRES Chair.

E. Student Grievance.

Students who have a grievance should take action in accordance with the UNBC graduate appeals policy.

F. Change of Supervisor and/or Thesis topic.

The initial selection of a supervisor is usually considered a permanent arrangement between the student and professor. If however, the student and the professor do not work well together or if other circumstances change (e.g., absence or leave), a request to change supervisor is made through the Office of the Dean of Graduate Programs, using the Supervisory Committee Approval form. During the transition, the Dean may request that students take a one-semester leave of absence.

If change of supervisor is accompanied by a change of thesis topic, or if thesis topics change without a change of supervisor, the student will be responsible for relinquishing deliverables (data, background research etc.) for grant-funded projects up to the point of the request. In the case of a change of supervisor, this data should be relinquished to the original supervisor. If the project changes without change of supervisor, the student, supervisor and committee will determine whether relinquishment of collected data is necessary and who is to be the recipient of this. Depending on the terms of supporting grants, stipends or scholarships held under the previous supervisor/project may have to be relinquished rather than transferred.

VI. Procedures Related to Changing Degrees or Between Project and Thesis

Normally students will not change degrees, or, in the case of MNRES students, change from a project to a thesis or a thesis to a project, once the graduate program has started. There is no project option in the MA (NRES) and MSc (NRES) degrees.

In the event that such a change is desired, the student in conjunction with their supervisory committee must send a memo to the NRES Graduate Program Committee Chair outlining the rationale for, and giving justification for, the changes in the degree. The NRES Graduate Program Committee will make a recommendation on the change to the Dean of Graduate Programs.

VII. Graduate Teaching Excellence Award for Graduate Teaching Assistants

The College of Science and Management offers one teaching award per year for graduate students. Any graduate student who is teaching in the College may be nominated. Each nomination must be signed by five students, and should be accompanied by a letter addressing the award criteria, review the Dean of CSAM's website for current information and nomination form. .

The award criteria are:

- exceptional teaching
- clear and effective instruction and assistance to students
- motivation and inspiration of students to learn

Nominations will be sent to the Office of the Dean of CSAM by a nomination deadline in late March. A selection committee made up of one representative from each of the Graduate Program Committees, the graduate student representatives from those Graduate Program Committees, and one undergraduate student from CSAM nominated by NUGSS will assess the nominations and faculty input. In the event that either the graduate student representative on the selection committee has been nominated for an award, the NBC Graduate Student Society will be asked to provide an alternate graduate student from CSAM to join the selection committee. The selection committee will invite written input from faculty who have supervised the teaching of the nominees during the last two semesters. Not less than one week after requesting submissions, the committee will make a recommendation of an award recipient to the Dean of CSAM.

It should be stressed to potential nominees that they are not to solicit students to nominate them.

VIII. Scheduling of NRES Courses

The Chair of the NRES Graduate Program will prepare a list of all graduate courses requiring faculty resources for the administrative Program Chairs of the different UNBC programs that contribute teaching to NRES or have a number of faculty supervising within NRES degrees (traditionally Ecosystem Science and Management (Biology, Fish and Wildlife, Forestry, Environmental Studies, Outdoor Recreation, Conservation and Tourism), Chemistry and Environmental Science, Geography, and Environmental Planning. This will be presented by the Chair as a five-year teaching plan to allow Program Chairs to build this into their workload assignments for faculty, and will be prepared in consultation with the Program Chairs.

- A. To determine the relative contribution from different administrative units, the Chair of the NRES Graduate Program will periodically assess the proportion of supervising faculty under the various NRES degrees that are appointed into the different administrative units. Requests for teaching resources from the Program Chairs will reflect the proportional number of faculty in their programs actively engaging in graduate supervision within the NRES degrees.
- B. The five-year schedule will include:
 - a. all required offerings (NRES 700, 701, 801, 802, 803, & 804) that must be offered annually
 - b. required offerings for the MNRES (NRES 703) that must be offered on campus at least in alternate years and which can be offered in conjunction with NRES field courses annually for those students who require the course in years when not offered on campus.
 - c. All 700 level courses that are listed under NRES in the Graduate Calendar. In practice these should be offered on at least a two year basis. *(If resources are not available so that the course is not offered for five consecutive years, the Graduate Program should begin a review of whether the course should be deleted and placed as a possible subject for special topics course offering under NRES 798 when resources allow).*
 - d. Any NRES 798 courses available to be offered.
- C. Prioritization for offering courses should first be given to filling required courses, followed by regular offerings of listed NRES 700 courses, and finally NRES 798 courses.
- D. The teaching plan provided to the Program Chairs will not identify individual faculty for assignments, but rather will identify which administrative units are requested to provide resources for filling these assignments. These requests will be based upon:
 - a. Prior suggestions from Program Chairs to the NRES Grad Program Chair for ongoing faculty assignments.
 - b. Proportional contribution of teaching resources associated with participation in the degree from faculty within each administrative unit.
 - c. Perceived fit of faculty within different administrative units to offer individual NRES 700 courses.
- E. Based upon these requests, the Program Chairs will make suggestions for filling their teaching obligations. This will be based upon:
 - a. Perceived fit of faculty for delivery of the particular course.

- b. Workload availability of particular faculty.
-
- F. A new draft of the 5-year plan shall be prepared by the Chair of the NRES Graduate Program at least one year prior to the end of the previous 5-year plan, and circulated to Program Chairs for feedback and discussion. This will then serve as a reminder for commitments and allow Program Chairs the flexibility of beginning to build graduate teaching into their long-term teaching assignments.
 - G. Each September, the Chair of the NRES Graduate Program will send a reminder, accompanied with the section of the teaching plan associated with the next Calendar Year to the Program Chairs.
 - H. The Program Chairs will submit the names of faculty from their programs to be assigned to particular courses. (Whenever possible, the Chair of the NRES Graduate Program will accept the assignment suggestions of the Program Chairs, providing they fit the mandate described above to maintain integrity and delivery of the NRES Graduate Program, although the Chair may refuse if the fit is inappropriate.)
 - I. The Chair of the NRES Graduate Program will be responsible for preparing the Course Scheduling forms utilising the DCU process for all NRES Graduate Courses. These will be distributed to the assigned faculty by the NRES Administrative Assistant for review. Once reviewed, they will be forwarded to the associated Program Chair for signature associated with workload assignment. These will be returned to the NRES Administrative Assistant for review and countersignature from the Chair of the NRES Graduate Program.
 - J. All NRES courses will, then, be submitted to the Dean of CSAM for final approval and then forwarded to the Scheduling Officer. The NRES Administrative Assistant will make a copy of each course schedule, and retain one for our NRES records, and send a copy to the Administrative Unit into which the Faculty instructor is appointed for their records.

IX. Guiding Principles for the Delivery of NRES Courses

A. NRES 700-3 (Research in Natural Resources and Environmental Studies)

Course Description

This course exposes Master's students to various philosophies and epistemologies regarding research within the field of natural resources and environmental studies. Topics include the nature of research, communicating research, research ethics, qualitative and quantitative methodology and interdisciplinary research. (*UNBC Graduate Calendar*)

Preamble

The NRES 700-3 (Research in Natural Resources and Environmental) course is delivered in the Fall semester on the UNBC Prince George campus. Every graduate student enrolled in the NRES Graduate Program at the Master's level, must complete this course, and it is anticipated that they will do so within their first semester (September entry into the Master's program) or their third semester (January entry into Masters).

Guiding Principles

The goal of the course is to expose students to issues in research that are interdisciplinary in nature (e.g. hypothetico-deductive reasoning, experimental design focused on minimizing error or bias in data collection) and shared across the many disciplines represented within NRES. Below is a set of guidelines that are not meant to inhibit the teaching style of the instructor but rather provide a basis for participating in the course, and particularly in developing new modules.

Examples of Course Goals, Themes or Desired Outcomes

- The core philosophy of the course lies in having students think about methods of conducting research that will allow them to accurately and objectively answer their research questions.
- Discussion topics that incorporate both the social and natural sciences work best, as they highlight the cross-disciplinarity of research techniques.

B. NRES 701-.5 (Graduate Colloquia)

Course Description

This course exposes students to a range of research and styles of presentation conducted in natural resources and environmental studies through attendance at weekly research colloquia over the Fall or Winter semesters of a calendar year. This is a pass/fail course (*UNBC Graduate Calendar*)

Preamble

Guiding Principles

This course is designed to expose students to the breadth of research and styles of research presentation in natural resources and environmental studies through regular attendance at the weekly NRESi Colloquium. Students will be required to attend (in person or remotely) a majority of the presentations in a given academic semester (one semester), including a number of

presentations outside of their research area. Students will be expected to submit comments and questions on each presentation during the question period. The course coordinator will be responsible for monitoring that all students appear to attend and are submitting questions. It should be noted that the course is P/F and not letter-graded. This course is also 1 rather than 3.0 Credits per semester, and workload expectations should be adjusted accordingly.

C. NRES 703-3 (Integrated Resource Management)

Course Description

“A critical examination of the concepts, policies, and methods for integrating multiple uses and resource values into management of forest and range land ecosystems.” (UNBC Graduate Calendar)

Preamble

NRES 703-3 is a required course for students enrolled in the Masters of Natural Resources and Environmental Studies (MNRES) program. Class meetings are 3 hours per week. Students receive a letter grade in the course.

Guiding Principles

This course aims to equip graduate students with some of the background and interdisciplinary tools associated with managing natural resources sustainably. Below is a set of guiding principles (i.e., key goals, themes or outcomes) that could be considered for the teaching of NRES 703. These are suggestions and are not meant to be restrictive in nature. The purpose of these guiding principles is to help faculty deliver the course in a relatively consistent fashion from year to year.

Examples of Course Goals, Themes or Desired Outcomes

Due to the integrative nature of the course, the nature of the subject matter, and the advanced level of the course, students are expected to:

- develop an understanding of some of the major theoretical concepts supporting integrated resource management and ecosystem-based management
- develop an active approach to learning; this can be accomplished (in part) by having students take a proactive role in developing and guiding the class room activities; the success of the classroom experience is dependent on the participation of the class members

Potential concepts, tools and techniques that might be covered include:

- principles of ecosystem management
- adaptive management and monitoring
- sustainability of complex living systems
- balancing the role of science and the role of the public in decision making
- skills associated with negotiation, facilitation, mediation, and/or collaboration

D. Procedures relating to the offering of NRES 798 and NRES 799 Courses.

NRES 798 (Special Topics) and NRES 799 (Independent Studies) courses are not interchangeable in their purpose. Students in NRES graduate programs can only use 3 credits of 799 course work towards their required course credits. This requirement sets a minimum amount

of credits that must be obtained in formal course work; NRES 798 can be used as a course where there is no formal UNBC course. NRES 798 cannot be used to give credit to students who are really doing a second independent (or directed) study. NRES 798 is a formal course, which requires submission of a formal course approval form, has some minimum student enrolment (normally at least 3) and formal weekly classroom meetings and must be advertised to the broader UNBC graduate student community. Faculty will be given formal workload credit for NRES 798 courses, but are not typically given formal workload credit for NRES 799 courses.

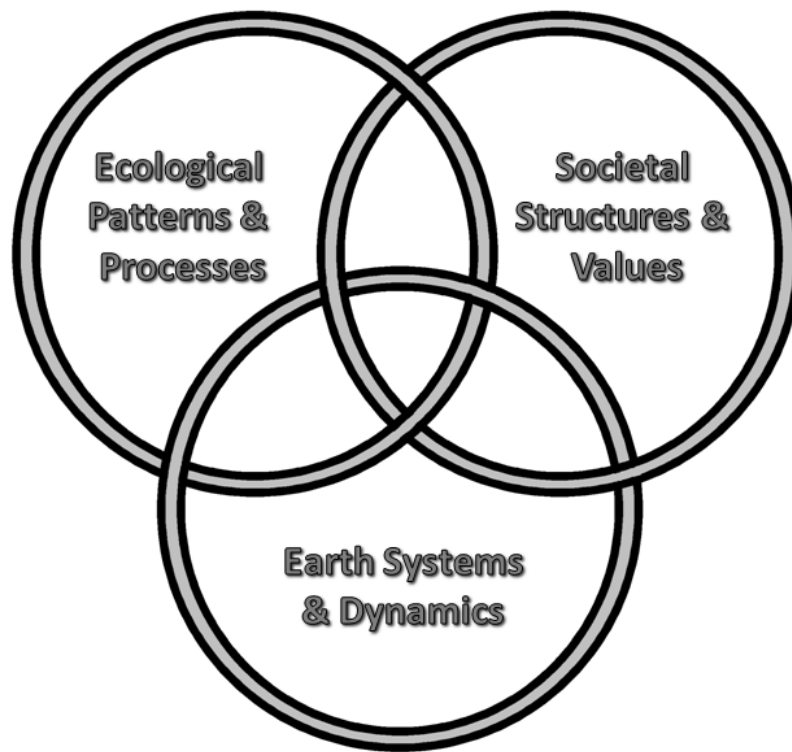
When a NRES 798 course is created, approval signature of the administrative chair (workload issue) is required in addition to the NRES Graduate Program Chair. NRES 798 sections **MUST** be created using a standard course approval form including a full course outline. Course approval forms can be submitted late in the process in the event that specific NRES 798 courses need to be added at the last minute, but normally these courses should be put forward no later than one month prior to the start of the semester in which they will be offered so that there is sufficient time to schedule and advertise the course. Scheduling forms must be forwarded to the Chair of the NRES Graduate Program for signature, tracking and to help in advertising to prospective graduate students. The signature of the NRES Graduate Chair on the registration form indicates that the proposed course constitutes a 700-level offering.

NRES 798 courses are designed to permit an occasional offering of a course within a faculty members expertise and as dictated by the needs or interests of NRES graduate students. As such, however, they should fill a gap in existing NRES curricula and not overlap or duplicate existing NRES courses offered in a calendar year. It is the responsibility of the proposing faculty member to demonstrate the need for and the unique nature of the course within a calendar year when submitting the course scheduling form to the NRES Graduate Chair.

NRES 799 (Independent Studies) are created by submitting a registration form with the expected course syllabus attached on a separate sheet. Most faculty members already have a syllabus for a NRES 799 before they agree to offer the course; all students and instructors need a clear listing of what the expectations are for the assigned credits when the directed study begins. By attaching this outline to the registration form, the administrative chair is aware of both the workload and course content when they sign the form. The NRES Graduate Program Chair's signature will indicate that the proposed course meets the standards of a 700-level graduate offering. The approach also ensures that the Registrar's office receives a copy of what the course outline and academic expectations were for that NRES 799.

X. Guiding Principles for the NRES PhD and Degree Requirements

NRES PhD is founded upon the integration of the **Physical, Ecological, and Social** Sciences as well as the relevant **Humanities** that make up the Natural Resources and Environmental Studies Program at UNBC. This is represented in the following Venn Diagram that serves as the NRES Logo, and which will be referred to in the guiding principles outlined below.



Each large circle represents a branch of research in Natural Resources & Environmental Studies. For example, **Earth Systems & Dynamics** explores the physical sciences aspects of the environment, such as: the role of water in landscape evolution; environmental processes that determine climate; the evidence for, types of, processes affecting, and impacts of global climate change; etc. **Ecological Patterns & Processes** explores the biotic components of environments, such as: requirements for sustainability of life; environmental adaptations; functions of different trophic levels within ecosystems; biodiversity; etc. **Societal Structure & Values** considers those aspects of the social sciences and humanities that influence, or are influence by, the environment, such as: relationships between people and place; human adaptation to the environment; patterns of resource exploitation; etc.

Where these circles overlap are the interfaces between these disciplines, requiring thought and understanding of issues from different perspectives. The intersections between **Earth Systems & Dynamics** and **Ecological Patterns & Processes**, for example, might consider ecosystem productivity, resilience and vulnerability to change, or the impacts of climate change on biotic systems. The intersect between **Earth Systems & Dynamics** and **Societal Structures & Values** may explore the impacts of anthropogenic disturbances (including ecotourism) on aquatic, terrestrial, or atmospheric systems. The intersection between **Societal Structures & Values** and **Ecological Patterns & Processes** might include: the sustainability of fisheries, wildlife, forestry, and recreation; policy decisions and their role in conservation; the role of the public in resource decision making, or how value systems and culture influence resource use, etc.

The NRES Program at UNBC stresses that understanding the inter-relationship between all three spheres, represented by the overlapping zone in the centre of the diagram, is a key concept in addressing issues in natural resources and environmental studies, such as: environmental planning; the role of conflicts and conflict resolution in natural resources management and environmental studies; and, cumulative impact assessment. Ultimately, the goal of our PhD courses is to help the student look outwards from this central perspective, and relate these different viewpoints to various problems/issues within natural ecosystems.

To facilitate this goal, students in the PhD NRES Program will take four courses in their qualifying year. The goal of these four courses is to introduce the students to the breadth of perspectives within NRES, as well as to have them learn to apply these differing perspectives to their own research, and effectively be able to communicate these ideas to specialists within their own fields, as well as to researchers in other fields, policy makers and the general public. The courses will provide the basis from which the students grasp of interdisciplinarity and the integration of the Physical, Ecological, and Social Sciences as well as the relevant Humanities that is the foundation of the PhD NRES. At the end of their second semester, as part of their qualifying year, the PhD students will take two Candidacy Exams: a Specialty Exam and an Oral Exam. Upon the successful completion of all four courses and the Candidacy Exams, students will be admitted as PhD Candidates and may proceed to defending their dissertation proposal.

A. Delivery of the NRES PhD Courses

The following principles govern and integrate the PhD courses with the Candidacy Exams in reaching the broader goals of the PhD NRES. It is an important task of the Chair of the NRES Graduate Program to annually coordinate a discussion between the faculty assigned to teach all four courses in a given year, to clearly delineate the goals of each of the courses and how they interact with one another to prepare the students for their NRES Candidacy Examinations and for ongoing success within the PhD.

1. NRES 801-3 and 802-3 are offered in the fall semester. Each course will be offered in a 2.0 hour blocks, back-to-back with the other course (or with one hour between). These courses should be scheduled so that both instructors can attend 801 and 802. Both courses will focus more on problem solving, and will focus on a suite of general topics relevant for PhD students in NRES, as well as topics chosen by students within individual cohort years that reflect their specific research interests in a broader context. These discussions will be driven by student questions and discussion rather than by lectures.
2. NRES 803-3 adopts a specialty-area-driven model in which the candidates work to examine their specialty project from a variety of disciplinary perspectives.
3. NRES 804-3 is offered once a year in the winter semester as a single 1.5-hour block. This format frees up time in the first semester for the candidate to begin work on developing their proposed thesis research, and allows the student to present on their specialty area during the winter semester.

4. NRES 801-3, 802-3, and 803-3, will all have as a requirement that the students attend the weekly NRES colloquium series. The shorter class meeting times for NRES 801, NRES 802 and NRES 804 offset this weekly requirement to attend colloquia.
5. A key requirement of the four courses is that they set the foundation for the student's ability to think across disciplines and to incorporate the necessary integration of Physical, Ecological, and Social Sciences as well as the relevant Humanities within their understanding of their own research as well as their broader understanding of their future activities. To ensure that each student is capable of so doing, the instructors of the 800 courses will organize their course to teach these abilities and assess students based upon their ability to so do. Course instructors will thus follow the following procedures:
 - Assessment of the student's integrative capacity will be built in to the 801, 802, 803 and 804 courses, and projects assigned in the regular courses will be judged through this lens. To ensure that the instructor retains this capacity, a minimum of 60% of the course grade will be evaluated by the instructor (peer-evaluations could compose up to 40%) in this case. Instructors of the 800 courses must state in course outlines that this will be part of the criteria used in evaluating course material, from participation, presentations and submitted material.
 - Assessment would generally be based upon the following general criteria in terms of integration of interdisciplinary perspectives: A+ - A (Excellent) Excellence in linkage and demonstration of knowledge, including integration of more than one disciplinary perspectives presented in the course, will be considered an excellent level of performance; A- (Good) Demonstrated ability to link perspectives and demonstration of an acceptable level of knowledge associated with the multiple disciplinary perspectives present in the course; B+ - B- (Passable) Inadequate linkage or failure to demonstrate knowledge in at least one discipline from associated with the multiple disciplinary perspectives present in the course will be considered a barely passable level of performance. This level of performance will result in qualifications. Less than a B- (Not-passable) Inaccurate or misleading statements, or inadequacy in linkage and failure to demonstrate an adequate knowledge in at least one discipline associated with the multiple disciplinary perspectives present in the course will be considered an unacceptable level of performance.
 - Course instructors will submit grades for the course as usual to their Chair responsible for the teaching workload, but will also produce a report to the NRES Graduate Program Chair indicating whether or not the individual students have demonstrated the ability to integrate information across disciplines encompassing the Physical, Ecological, and Social Sciences as well as the relevant Humanities. If the student's grade at the end of the term is assessed to fall in the A- to A+ range, the grade is submitted and the individual evaluation report that goes to the Chair of NRES would indicate that they have showed sufficient ability to integrate ideas from NRES disciplines to earn a clear pass. Students must gain clear passes in each of the four 800 courses to proceed to the Candidacy Exams.

- If the student's performance in any 800 course is earning them a grade that would be submitted as a B- through B+, they would be given a DEF grade, and told where they fall in this range and the deferral is giving them an opportunity to improve upon this mark through handing in some qualifying material. The individual assessment report to the NRES Graduate Chair would then simply state they were given a Deferral and opportunity to improve on their mark with a qualifier.
 - a. The closer this grade is to the top of the range (e.g. B+), the less the qualification imposed. E.g. they might be allowed to revise and resubmit a poorly-written term paper to improve their assessment. If their course work is getting them B- grades, they could be assigned a completely novel assignment. This would be at the instructor's discretion. Similarly at the instructor's discretion, if the instructor felt that the ability to integrate material was strong, but their expression of this warranted a B+ grade in the course (borderline "pass with qualifications" in the above descriptions), they could make a special case in their evaluation not to impose qualifications despite submitting a B+ grade. That last case is determined by the NRES Graduate Chair, who then advises the instructor.
 - b. Students are given the standard semester within which to deal with these qualifications and resubmit. For 801 and 802, this would mean resubmission at the end of the Winter Semester; for 803 and 804, this would mean resubmission at the end of the Spring/Summer Semester. Once complete, the instructor evaluates the work and re-evaluate where the student's grade lies.
 - c. The student's supervisory committee in collaboration with the course instructor suggests setting criteria for the qualification that would at LEAST be of sufficient quality to be at an A- level. If the student was on a deferred grade, if an instructor made their original mark worth 70% of their final grade criteria, and now imposed that the remaining 30% would be evaluated on the assigned qualifiers, a student with an original B- would jump to an overall B in the course at least, but one with a B or B+ might see their grades jump up into the B+/A- range, even with a more moderate improvement.
 - d. If the student meets the criteria outlined, the instructor would submit the new grade by the end of that semester and then submit the individual evaluation to the grad chair. If the student's performance in the course does not meet a B-level, or if after a deferral for those in the B-to B+ range, their qualifier doesn't meet the above standards, they get a grade submission for the course as an F and the report to the NRES Graduate Chair indicates that they have failed to meet the assessment criteria required. This will impose a continuance review for the student, and it would then be the role of the supervisory committee to determine whether the student has to withdraw or would be given an opportunity to re-sit the course(s).
- The Specialty and Oral Exams would proceed once the student has achieved clear passes in all four 800 courses. The examining committee for the Specialty and Oral Exams would be composed of the student's supervisory committee plus the NRES Graduate Chair or designate as the Exam Chair. The committee would determine a mark (clear pass, pass with qualifications or fail), and the student would proceed accordingly. When the Specialty Exam is completed, including any qualifications,

the NRES Graduate Chair will submit the required form to the Office of Graduate Programs

B. Guiding Principles for NRES 801, NRES 802, NRES 803 and NRES 804

NRES 801-3/802-3 (Integrated Environmental Systems I & II)

Calendar Descriptions

NRES 801 - Integrated Environmental Systems I - This course is an interdisciplinary examination of the biological, chemical, and physical processes of ecosystems. Key sciences to be considered include biology, ecology, physics, chemistry, earth sciences, selected social sciences, and recent developments in systems theory, as well as interactions among the sciences. This course will involve a critical examination of the nature and distribution of components within ecosystems, the processes that govern them, and their relevance to environmental systems. Major issues in natural resource management and environmental studies, such as global climate change, will provide the discussion framework for this class.

NRES 802 - Integrated Environmental Systems II - This course exposes the student to the major extant theoretical explanations of human use, valuation, appreciation, and perceptions of the natural environment. Included will be overviews of the role of science in society, market and non-market valuation processes with respect to natural resources, attitude formation, aesthetics and perceptual bases, planning and policy implications, and the driving forces in human uses of natural resources. An important component will be an exploration of the major natural resource issues involving environmental ethics and reasoning.

Preamble

NRES 801 and 802 work best when taught in an integrative fashion. The two courses are scheduled to occur in back-to-back 2 hour sessions, ideally with the faculty assigned to one course being able to attend the other course as well. NRES Faculty have identified a number of common topics they feel are important to cover with each cohort year. These are scheduled, usually one topic per week, at the start of the semester and take up the first five to six meetings. These topics include: *Philosophy of Research*; *Role of Research in Society*; *Research Ethics*; *Philosophy of Research Methodology* (especially differences between social and physical sciences); *Values and Biases*; and *Practicalities of Interdisciplinary Research*.

The remaining classes for the semester are then topics chosen in consultation with the cohort of students, based on particular research backgrounds and interests within that year, or addressing newly-emerging ideas or current topics in Natural Resources and Environmental Studies.

Guiding Principles

The goal of NRES 801/802 is to have students begin to think outside of their disciplinary perspectives and see that there may be multiple ways of viewing a single issue within natural resource management or studies of the environment. The underlying theme for the courses is symbolized by the NRES Venn Diagram of the three overlapping areas of focus – Physical

Sciences/Biological Sciences/Social Sciences and Humanities (see first page). An aim of the course is to help students recognize that, depending on their background, other researchers may take a different approach to addressing a particular problem. NRES 801 & 802 not only introduces the students to divergent topics and research done by other students/faculty in the degree, but is aimed at allowing them to see the broader context into which their own research will contribute to a greater understanding of Natural Resource & Environmental Studies.

While both courses start the semester by addressing the same topic question (see above) each week, NRES 801 brings perspectives on the problems from the viewpoint of the physical/life sciences, and NRES 802 brings perspectives on the problem from the social sciences and humanities. Readings from either perspective are assigned to provide background and an impetus to start discussions. Once the course transitions into Student-led topics, they are encouraged to follow this pattern of picking topics (including those of interest/relevance to their research fields) and presenting on alternate perspectives on the subject from the physical/life/social sciences and humanities perspectives. Typically, the students present a topic and lead discussions/problem solving sessions in both NRES 801 & 802. They then prepare a written paper for each course based on these topics. Other marks for the course are based on participation in discussions. The students can present the same topic for both their 801 & 802 sessions, but would have to focus the discussions from different perspectives represented by the two courses between their two presentations. Alternately, they can pick different topics to present/lead discussions in the two courses, so long as they demonstrate this interdisciplinary approach to problem solving.

From a practical standpoint, the role of NRES 801 and 802 is to begin preparing students for thinking about broader issues in environmental research. By the end of the courses, students should be able to speak to issues in natural resource management and environmental studies and see the interconnections between how physical processes of earth systems interact with and affect the ecology of species within those ecosystems, and how these ecosystems both affect and are affected by humans and societal values. In addition to discussions within the classroom setting, students are obligated to attend the weekly NRES Colloquium, which will also introduce them to new ideas and techniques employed by faculty and students in the department and outside experts.

Resources for Delivery

Course outlines for delivery in past years are available from the NRES Administrative Assistant or Chair, and NRES will maintain a file of potential discussion papers used in past years for specific topics.

NRES 803 – Integrated Environmental Systems III

Calendar Description

NRES 803 - Integrated Environmental Systems III - Students in the graduate cohort work together to formulate an interdisciplinary perspective on their graduate research projects. Supervisors and the supervisory committees guide students in the development of their research proposals, while the NRES 803-3 cohort and instructor provide input, through seminars and discussions, to help the student relate the research thesis to the social and arts, physical, and life

sciences of natural resources and the environment.

Preamble

NRES 803 has become the transitional course used to take the broader understanding of topics in NRES (stressed in NRES 801/802) and begin applying this to looking at the context of the student's own research.

At the start of their PhD qualifying year, the students are instructed that they should be working with their supervisor/committee during their fall semester to develop a rough proposal drafted by the start of the second semester (this is done independent of their formal coursework). This serves two purposes – it provides material so that their supervisory committees can begin setting topics/readings for their Specialty Examinations, but also serves as a template upon which NRES 803 builds. This means that by the end of January, the instructor can assume that the students should have a draft of their proposed PhD project.

Guiding Principles

This course emphasizes *the student's thesis in context*. As such, the student must have a firm idea of the projects that they plan to undertake. The goal of the course is to challenge the students to think about their work from perspectives other than simply the disciplinary-lens typical of most PhD programs.

The course usually starts with discussion of integrative theories in science and research, which emphasizes theories that treat earth systems, or major parts of it, in a holistic manner, and which have relevance across disciplines. Some examples of these that have been used in the past years are “Gaia Hypothesis”, “Chaos Theory”, “Fractal Dimensions of Nature”, “Eco-feminism”, “Buckingham Pi Theorem”, etc. Students are then challenged to use these larger frameworks to view their own research from perspectives outside their specialty area.

Students typically do two presentations in NRES 803 – one on an integrative theory in science and research, and the second one on their own research topic from a perspective differing from the discipline in which they identify themselves. This second presentation is a preview of the major paper requirement in the course.

By focusing on the student's project, NRES 803 aids the student in preparation for their Specialty Candidacy Examinations being set by their supervisory committees.

NRES 804 – Graduate Seminar

Calendar Description

NRES 804 Graduate Seminar - This seminar is geared towards developing "critical thought" and aims to help candidates respond across a broad spectrum of topics. The seminar functions to generate debate on various (frequently contentious) issues, to promote interaction with faculty members and other students across the entire faculty, and to act as a platform for presentations by the students themselves and invited speakers. Each PhD student is expected to give two 50 minute presentations. One presentation will be on a topic agreed upon by the student and the course coordinator, and the other will be relative to the student's thesis.

Preamble

Over the years, the seminar has sought to define itself from the other NRES 800-level courses, in order to provide a novel skill set to the students necessary for progression at a PhD level. Originally envisioned as a mechanism for having all faculty supervisors and previous-cohort students to participate with the new cohort, this proved impractical to schedule into a regular class meeting time. However, the importance of this interaction and ability to engage in critical thought and discussion with the larger NRES body is part of the requirement for students to attend and participate in the weekly NRES Colloquia.

Despite the ‘constrained’ language of the calendar description, we have begun to use the classroom time to have students explore different means of communicating complex information, which is relevant for disseminating research to: colleagues within and outside of one’s disciplinary area; policy makers and government agencies; media; and, the general public. This has also included presenting research in poster versus seminar formats, how to communicate with persons from the media, presenting material in course lecture formats versus seminar formats. As the topics chosen to present largely reflect topics related to the student’s intended proposal, they may also use this as a format to begin communicating ideas relevant for their Candidacy Examinations.

Guiding Principles

The primary goal of NRES 804 is to develop a broader understanding of the inter-relationship between topic areas with NRES, as well as improve the ability of the students to communicate this understanding in an array of formats. By attending the NRES Colloquia, students can critically evaluate and discuss how others integrate various disciplinary understanding into their own research programs. This also provides them with an ability to interact with other students and faculty in the program.

Within class time, the instructors have focused on the critical need of researchers to be capable of communicating research to a wide array of audiences. This could be explaining their work to researchers in other disciplines, the general public, regulatory bodies, industry, the media, etc. Further, students will need to be able to express this information in a variety of formats, not simply in traditional “seminar” format. In past classes, this has included having students create posters on their proposed PhD research, which they present at the UNBC Graduate Student Annual Conference, and/or the NRES Institute Annual Lecture & Poster session. This allows them to present their work, and gain feedback from, the general faculty and other graduate students within the NRES Program. Other ideas that have been explored include how a student might portray their research to a general audience or to the media in an interview session, such as the YouTube video sessions posted by Graduate Programs. Students have been assigned to take individual topic material assigned by their committees for their Specialty Candidacy Exam and develop this into a lecture format targeted towards an upper-division undergraduate class. Other forms of research communication are also possible to incorporate.

C. Policies and Procedures Relating to the Candidacy Examinations for the Ph.D. in NRES

A Candidacy exam, consisting of written and oral components, must be taken by all Ph.D. students during April/May, normally at the end of the first two semesters, but no later than the end of their second year of enrolment at UNBC (Section 7.9 of the Graduate Calendar).

The written portion of the Candidacy exam consists of an exam related to the student's major area of specialization and an oral exam. Questions concerning the graduate student's specialty area will be set and marked by the student's supervisory committee. The scope and level of the questions will be communicated to the student by the committee not less than 60 days prior to the exam. The questions will address the field of study from which the student's thesis topic is a specific component (details of the student's research will be defended in a separate defense of proposal). The student will write on four (4) out of six (6) questions. The specialty exam will be assigned a grade by consensus of the supervisory committee.

The oral portion of the Candidacy exam will normally be completed within one to three weeks after the written exams. The oral exam will test the student's knowledge of their specific research area. The examining committee for the oral exam will be comprised of the supervisory and will be chaired by the Chair of the NRES Graduate Program, or designate appointed by the Chair. The oral exam will be assigned a grade by consensus of the oral examining committee.

The student will receive one of three grades for the, oral, and specialty components: (a) pass without qualification, (b) pass with qualification, and (c) fail. A pass without qualification for the overall exam requires a clear pass in all components. A student passing with qualification must make up stated academic deficiencies through recommendations by the oral examining committee. In addition, the oral examining committee will make recommendations to the NRES Graduate Program Committee Chair of an overall grade for the entire Candidacy exam. The NRES Graduate Program Committee Chair will assign the final grade, after considering the recommendation of the oral examining committee. A student who receives a failing grade in any of the oral, or specialty components has up to 4 months to successfully complete the exam(s) in question.

D. Failure on Exams or Qualifications

Students may retake the Specialty Written or Oral Exam once, generally within four months of the first attempt (unless there are extenuating circumstances deemed acceptable by the NRES Graduate Program Chair in consultation with the student's supervisor). If a student fails on their second attempt any portion of the Exam they are retaking, the NRES Graduate Program Chair shall make a report to the Dean of Graduate Programs of this outcome and recommend that the student be withdrawn from the PhD NRES Program.

If a student is assigned qualifications as a result of their Written or Oral Exams and fails to complete these qualifications within the allotted timeline to the satisfaction of the Examining committee, the Examining Committee shall submit a report detailing the nature of the unsatisfactory performance to the NRES Graduate Program Chair within 15 days of the date of the qualification deadline. The NRES Graduate Program Chair shall then submit this report and a recommendation that the student be withdrawn from the NRES PhD Program to the Dean of Graduate Programs within 10 days of receiving the Examining Committee Report. The NRES Graduate Chair may also choose to informally advise the student of the recommendation made, with the proviso that the Dean of Graduate Programs will advise the student of their decision regarding the recommendation.

[NOTE: Forms and procedures relating to the PhD Candidacy Exam which are to be distributed to candidates and used in marking the exam are in Appendix IV]

Appendix I – Suggested Progression Timelines

In the following suggested progressions, the year is divided into three semesters. For most students, who begin their program in September, semester 1 is September through December; semester 2 is January through April; semester 3 is May through August in their first year. The progression shown assumes the student is full-time; part-time students' progression would be slower. This is an idealized progression, the actual path taken may differ, particularly if two summer field seasons are needed for data collection.

Master's Degrees

Semester 1

- Supervisor and student develop initial course selection
- Supervisor and student select Supervisory Committee members
- Student takes first semester of course work and TA if applicable
- Supervisory Committee has initial meeting with student at which course selection is finalized and research plans are discussed. Timeline for writing of Thesis/Project proposal is agreed upon. **Graduate Program and Supervisory Committee Approval Form** is completed and sent to the Chair of NRES and then to Dean of Graduate Programs; **Graduate Supervisory Committee Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- If student does not hold a continuing TA but is interested in a TA for the next academic term, a TA application should be sent to the CSAM office by the application due date

Semester 2

- Student takes second semester of course work and TA if applicable
- Student in consultation with Supervisor and committee develops Thesis/Project Proposal (structure and content of the proposal is determined by the Supervisory Committee)
- Supervisory Committee meets for Defense of Thesis/Project Proposal which is either accepted as presented, accepted subject to modifications, or rejected. **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs indicating successful defense of the research proposal
- If student is interested in a TA for the next academic term, a TA application should be sent to the CSAM office by the application due date
- After the proposal is successfully defended, if necessary the student in cooperation with the supervisor submits a Research Ethics Board proposal, an Animal Care Committee proposal or other university required research review form. Research may not proceed until such approval, if necessary, is granted by the appropriate UNBC committee

Semester 3

- Student takes third semester of course work and TA if applicable
- If Proposal was accepted, student begins Thesis/Project research
- If Proposal was rejected or required modifications such that it needed re-evaluation by the Supervisory Committee, the Supervisory Committee meets for a new Defense or re-evaluation of the Proposal. **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs

- If student is interested in a TA for the next academic term, a TA application should be sent to the CSAM office by the application due date

Semester 4

- Student takes fourth semester of course work and TA if applicable
- Supervisory Committee meets if necessary (committee must meet at least once, preferably twice per year). **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- Thesis/Project research continues
- Writing of Thesis/Project begins
- If student is interested in a TA for the next academic term, a TA application should be sent to the TA coordinator on the CSAM Graduate Committee
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Semester 5

- Student takes fifth semester of course work and TA if applicable (it is recommended that course work be completed before this time, especially for Thesis students)
- Supervisory Committee meets if necessary (committee must meet at least once, preferably twice per year). **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- Thesis/Project research concludes
- Writing of Thesis/Project first draft
- Student and Supervisory Committee select External Examiner for Thesis/Project

Semester 6

- Supervisory Committee meets if necessary (committee must meet at least once, preferably twice per year). **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- Feedback on first draft Thesis/Project provided to student by Supervisor (and possibly by committee)
- Thesis/Project finalized and Supervisory Committee reaches agreement that Thesis/Project is ready for Oral Defense
- Oral Defense date requested by sending **Request for Oral Examination** form with the final Thesis/Project to the Dean of Graduate Studies at least **6 (six)** weeks prior to desired Defense date (see the Guidelines from the UNBC Graduate Office: <http://www.unbc.ca/graduate-programs/thesis-defence-process>)
- Oral Defense is held and if successful and student has met other program requirements, student is ready to graduate at the next convocation

PhD Degree

Semester 1

- Supervisor and student develop initial course selection
- Supervisor and student select Supervisory Committee members
- Student takes first semester of course work (NRES 801-3 and 802-3) and TA if applicable

- Supervisory Committee has initial meeting with student at which course selection is finalized, research area is discussed, and Candidacy Exam general and specialized areas are considered. **Graduate Program and Supervisory Committee Approval Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs; NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- If student is interested in a TA for the next academic term, a TA application should be sent to the TA coordinator on the CSAM Graduate Committee

Semester 2

- Student takes second semester of course work (NRES 803-3 and 804-3) and TA if applicable
- Early in semester student meets with Supervisory Committee with an outline of their proposed research (draft proposal), and seek guidance with respect to the general dissertation topics that will serve as the focal point/issues for the specialized Candidacy examination of the student. NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs (if not completed in semester 1)
- If qualifications were imposed from NRES 801 or 802 they must be completed
- At the end of the next winter semester (normally Semester 2), if there are no outstanding qualifications, student takes the Candidacy Exams

Semester 3

- Student takes third semester of course work (if applicable) and TA if applicable
- If qualifications were imposed from NRES 803 or 804 they must be completed
- If Candidacy Exam was not passed it is retaken. If Candidacy Exam found deficiencies, they are addressed
- Student prepares final Thesis Proposal in consultation with supervisor and committee (format and content of the proposal are determined by the Supervisory Committee)
- Defense of Thesis Proposal to Supervisory Committee – may instead occur at start of Semester 4. **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs
- Thesis research formally starts once the Proposal accepted. If students must begin data collection prior to approval of the final Thesis Proposal, the student must outline the nature of the work and have prior permission of the committee to proceed

Semester 4

- **If** qualifications were imposed in NRES 803 or 804 and completed, student takes Candidacy Exam
- Student takes fourth semester of course work (if applicable) and TA if applicable
- Supervisory Committee meets if necessary (committee must meet at least once per year). **NRES Progress Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Thesis research continues

Semester 5

- Student takes fifth semester of course work (if applicable) and TA if applicable (it is recommended that course work be completed before this time). Students are encouraged to continue to participate (not register) in the PhD seminar (NRES 804) during the winter semester
- Supervisory Committee meets if necessary (committee must meet at least once per year). NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Thesis research continues

Semester 6

- Student takes TA if applicable
- Supervisory Committee meets if necessary (committee must meet at least once per year). NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Thesis research continues
- Writing Thesis begins now, if not before

Semester 7

- Student takes TA if applicable
- Supervisory Committee meets if necessary (committee must meet at least once per year). NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Thesis research concludes
- Thesis writing continues

Semester 8

- Student takes TA if applicable. Students are encouraged to continue to participate (not register) in the PhD seminar (NRES 804) during the winter semester
- Supervisory Committee meets if necessary (committee must meet at least once per year). NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Student and Supervisory Committee select External Examiner
- Feedback on first draft Thesis provided to student by Supervisor (and possibly by committee)

Semester 9

- Supervisory Committee meets if necessary (committee must meet at least once per year). NRES Progress **Report Form** is completed and sent to the Chair of NRES and then to the Dean of Graduate Programs if applicable
- Feedback on subsequent drafts of Thesis provided to student by Supervisor and Committee
- Thesis finalized and Supervisory Committee reaches agreement that Thesis is ready for Oral Defense. At this point, faculty and student must refer to section 7.10 Final Oral Examinations under the PhD section of Graduate Programs Admissions and Regulations of the UNBC Calendar
- Each committee member prepares a one-page report on the readiness of the PhD thesis for defense. These must be completed and submitted to the Dean of Graduate Programs either

with the finalized thesis (and should be sealed so they are confidential reports to the Dean). This evaluation should indicate whether the thesis is of adequate substance for the student to proceed to final examination or whether the dissertation is unsatisfactory and the student should not be allowed to proceed. An evaluation of the dissertations merits and deficiencies should accompany this declaration. The thesis will not be forwarded to the external reviewer until all committee members have submitted these reports, and will delay the scheduling of the Oral Examination

- The supervisory committee shall discuss and recommend an appropriate external examiner (see section 7.10.2 External Examiner of the UNBC Calendar for details); Nomination of a PhD External Examiner form to be sent to the Dean of Graduate Programs
- Oral Defense date requested by sending **Request for Oral Examination** form with the final Thesis to the Dean of Graduate Studies at least **12** (twelve) weeks prior to desired Defense date
- Oral Defense is held and if successful and student has met other program requirements, student is ready to graduate at the next convocation

Summary of Recommended Progression

<u>Dates</u>	<u>Courses/Research</u>	<u>Course Credits</u>
Year one: September-December	NRES 801-3; NRES 802-3	6
January-April	NRES 803-3; NRES 804-3	6
Year two: May-December	proposal preparation and defense	
	NRES 890 (research)	
January-April	Meet any exam qualifications, NRES 890	
May-December	NRES 890	
Year three and subsequent years	NRES 890, thesis writing	12
Final year	oral defense	
	Total	24

Appendix II – PhD Candidacy Exam

The following forms summarize the procedures and evaluation of the PhD Candidacy Exam. They should be distributed to all PhD candidates, and used to mark each of the exam components.

Specifics for the PhD (NRES) Candidacy Exam

Marking the PhD (NRES) Candidacy Exam

Final Evaluation of the PhD (NRES) Candidacy Exam

Oral Exam Procedures for the PhD (NRES) Candidacy Exam

SPECIFICS FOR THE PhD (NRES) CANDIDACY EXAM

General Note: No student may proceed with any part of the Candidacy Exam if they have Deferred grades in any required NRES course. The Deferred grade must be resolved within two weeks of the scheduled written exam or the NRES Chair will require the student to take the exam at a later date, including potentially in the subsequent exam cycle. Prior to scheduling the exam, the NRES Chair will confirm with the Graduate Officer in the Registrar's Office that no student scheduled to write an exam has a DEF grade on record.

I. EXAM COMPONENTS

A. Written specialty

1. The specialty part of the exam assesses the student's background knowledge and familiarity with the philosophy, theory and methodology associated with the student's thesis topic. Questions should not serve as a defense of proposal details (e.g. should focus on general theory, rather than specifics of methodology).
2. Questions will be compiled and marked by the student's supervisory committee.
3. The specialty exam may last up to 4 hours.

B. Oral

1. The oral exam will address the student's specialty area and any of the general themes needing further clarification / elaboration, as reflected by the written exams.
2. The oral examining committee will consist of members of the supervisory committee and the faculty members coordinating the Ph.D. core courses. It will be chaired by the NRES Graduate Program Committee Chair, or a neutral faculty member appointed by the Chair.
3. The oral exam may last up to 2 hours.

C. Evaluation - Specialty Exam

Each essay will be evaluated by at least two members of the committee. Following the written exam, the Chair of the graduate program will distribute the questions answered by the student to the individual committee members indicated as markers. Committee members must submit an evaluation to the Chair of the graduate program **at least two days prior to the scheduled oral examination.**

The intent of the Written Specialty Exam is to assess “the student’s background knowledge and familiarity with the philosophy, theory and methodology associated with the student’s thesis topic”. The questions on the exam should reflect readings/discussions the committee members have had in guiding the student towards this goal. The evaluation should reflect whether the student understands and is comfortable with these topics. There is less requirement for students to answer these questions by integrating the different NRES disciplines (physical, social, and life sciences).

II. MARKING

Each essay on the written specialty exam will be given one of the following marks [modified from criteria used for marking the written general examination to provide the same marking scale, but focusing on task of the specialty exam]:

1 (excellent)

- Excellence demonstrated in understanding of the subject area and subtle distinction in concepts and/or theories (grade 1)
- surpasses expectations
- demonstrates excellent understanding and familiarity with the subject matter
- provides additional details or examples from those assigned in readings or from outside their immediate area of study, including integration from other NRES disciplines

2 (good)

- Demonstrated ability in understanding the major concepts within the subject area
- meets expectations
- provides sufficient understanding of subject matter
- some integration of disparate ideas within specialty area, or from other NRES disciplines

3 (passable)

- Inadequate knowledge in at least some major components of the subject area, or some inaccurate statements within parts of the answer (grade 3)
- barely meets expectations
- provides passable knowledge of general subject matter
- may have one or more areas which need further work (these will be identified)

4 (not passable)

- Inaccurate or misleading statements, or inadequate knowledge of the subject matter, will be considered an unacceptable level of performance (grade 4)
- does not meet expectations
- inaccurate or misleading responses

Each written exam will receive an overall mark (1-4), calculated as the weighted mean of the marks assigned to the individual questions.

The oral exam will be assigned a mark (1-4), based on consensus of the committee or the average of the marks assigned by each committee member.

III. FINAL EVALUATION OF THE CANDIDACY EXAM

The oral examining committee will provide the Chair of the NRES Graduate Program Committee with the student's marks for the 2 components (1 specialty, 1 oral) and a recommendation and rationale for one of the following:

1. Pass without qualification

- student received a mark of ≤ 2 (good or excellent) on all exams

2. Pass with qualification

- student received a mark of > 2 on at least one exam, but no marks of > 3
- actions to fulfill any deficiencies, as reflected by answers on the written and oral exams, must be itemized (e.g., course work, independent study) by the oral examining committee

3. Fail

- student received a mark of > 3 on one or more exams
- student will have the option to repeat all or parts of the Candidacy Exam (as recommended by the oral examining committee) within 4 months

IV. ORAL EXAM PROTOCOL FOR THE PH.D. (NRES) CANDIDACY EXAM

This document outlines the protocol that is to be followed during the oral portion of the Candidacy Exam for the Ph.D. (NRES).

1. The Chair of the Oral Exam will convene the exam
2. Following an introduction of all of the members present (candidate, supervisory committee members), the Chair will review this document to ensure that everyone understands the procedures to be followed and the responsibilities of the examining committee.
3. Purpose of the Oral Exam: The oral portion of the Candidacy Exam will stress the candidate's specific research. At the completion of the Oral Exam the members of the examining committee will be asked to assign a mark and also to make any recommendation necessitated by grades greater than 2 (good) for either the written or oral exams. The Chair should remind committee members that questions must be drawn from the scope of the originally assigned readings and written questions.
4. The candidate will be asked to withdraw from the room before the Oral Exam begins so that the Chair can briefly review the candidate's performance on the specialty written exam. The members of the supervisory committee will have received summaries from the specialty exam so that all members are prepared to appropriately question the candidate.
5. The Chair will draw the committee's attention to any areas in which they will have to make recommendations on conditional passes following the completion of the Oral Exam (i.e., any exam on which the candidate received a score of >2 but not >3 ; any exam with a score of >3 will have to be retaken by the candidate) so that they can fully explore these areas during the Oral Exam.
6. The candidate will then be recalled into the room for the commencement of the Oral Exam.
7. Questioning will begin with a round of questions from all examiners. Normally, each examiner will pose one question with the possibility of a single related follow-up question. However, at the discretion of the Chair, an examiner may be permitted to engage in a dialogue with the student to clarify points raised; this should not be more than 10 minutes.

8. Following one complete round of questions from the examining committee, the committee will be asked if there are any major outstanding issues in the specialty area. The supervisory committee would *at maximum* be limited to one more round of questions with a single follow-up question.
9. The candidate will then be asked if they have any comments that they would like to make to the committee.
10. The candidate will then be asked to withdraw so that the examining committee can deliberate.
11. The Chair will first direct the examining committee to arrive at a grade for the Oral Exam. This grade can be reached either by consensus or by an average of the grades submitted by each member. Grades may be submitted orally or by secret ballot at the will of the committee. [1 (excellent) = surpasses expectations; provides integrated, encompassing overview of the subject matter; provides additional details from one or more perspectives; 2 (good) = meets expectations and provides an integrated overview of the subject matter; 3 (passable) = barely meets expectations and provides an acceptable overview of the subject matter; there may be one or more areas that need further work; 4 (not passable) = does not meet expectations; inaccurate or misleading responses.
12. Once a final mark has been determined for the Oral Exam, 2 marks will have been assigned to the entire Candidacy Exam. For any of the individual exams (written or oral) for which the candidate has a composite score of >3 (fail), the candidate will need to retake that portion(s) of the Candidacy Exam. The guidelines for the degree indicate that the candidate will have the option to repeat all or any portions of the Candidacy Exam, as recommended by the oral examining committee. There is no requirement, however, to retake portions of the exam that were successfully completed during the first attempt.
13. For **each and every** portion of the exam (oral and written) for which the candidate has achieved a conditional pass (a score of >2 but not >3), the examining committee **must** itemize the specific actions (e.g., course work, independent study) needed to fulfill any deficiencies, as reflected by the candidate's answers on the written and oral exams. The magnitude of the action will presumably be proportional to the degree of the deficiency (i.e., value of the mark relative to the threshold marks of 2 and 3).
14. Once all of the conditions have been detailed on the evaluation form and have been signed by all members of the examining committee, the candidate will be recalled to the room and informed of the outcomes of all portions of the oral and written exam and any further actions that may be required of the candidate.