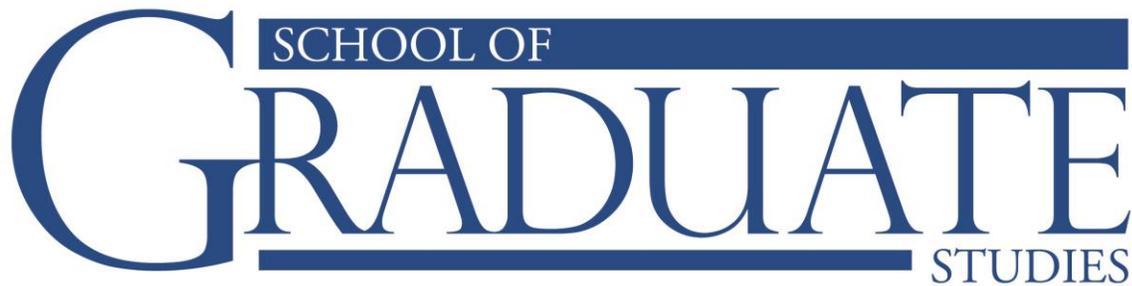


Central Connecticut State University



THE MASTER'S THESIS

**A Handbook and Writer's Guide
for Graduate Students**

**Developed by the Office of the
Associate Vice President for Academic Affairs/
Dean, School of Graduate Studies
Henry Barnard Hall**

Community of Scholars

*To facilitate active and ongoing participation, community, and interaction of
faculty and students around a shared commitment to the advancement of
knowledge through innovation and research*

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Introduction

Congratulations! You are going to write a Master's thesis, a demanding and intellectually challenging task. As one of the capstone experiences of graduate study at Central Connecticut State University, the Master's thesis signifies a *rite of passage*. You will learn and practice the skills required for organized research and documentation, analysis of information and effective written communication. You are making the transition from one who is a consumer of knowledge to one who actively contributes to the knowledge base of their discipline. *You are becoming part of the Graduate Studies Community of Scholars by advancing knowledge through your research.*

This handbook is prepared so that students may successfully complete their thesis work. It contains an overview of the thesis process, from start to finish, as well as specific thesis requirements of individual departments. It has four chapters. Chapter 1 defines what a thesis is, while Chapter 2 provides an overview of the thesis process-the steps one must take from the initial conceptualization of a possible thesis idea to the finished project. The third chapter discusses specific standards required by the School of Graduate Studies to guide students through the thesis process. Chapter 4 enumerates specific departmental requirements. Because you cannot register for the Thesis online, Appendix A is needed during the period of registration. In order for you to get credit for your Thesis, the capstone registration form must be signed and submitted to the Graduate Studies Office. Additional appendices are also included: Appendix B provides a checklist on all items that must be included at the time of submission; Appendix C contains the rubric developed and approved by the Graduate Studies Committee meant to inform you of some of the criteria by which your thesis will be assessed. Other appendices include important information on the Human Studies and the Institutional Animal Care and Use Committee (Appendices D & E) as well as samples of forms and documents that are needed for your thesis, from your first registration to the final submission of your thesis.

Thank you to Professor Marc Goldstein of the Psychological Science Department for his help in preparing the first iteration of this handbook. Thank you also to members of the Graduate Studies Committee for their dedication to upholding the standards and quality of CCSU's graduate programs.

While every effort will be made to keep this *Handbook* up-to-date, please confer with your graduate advisor about any recent changes that may have taken place. You may also contact School of Graduate Studies, located in Barnard 102 and at 860-832-2363, if you have questions.

Writing a thesis takes time, hard work, and patience. Nonetheless, you should find it to be a worthwhile and rewarding endeavor. Many faculty members, along with the School of Graduate Studies staff, are ready to support you. I wish you successful completion of your thesis work.

Dr. Paulette Lemma
Associate Vice President of Academic Affairs/
Dean, School of Graduate Studies

Chapter 1

What is a Thesis?

Preparing a Master's thesis is a time-honored tradition in academe, yet many students who are about to undertake such a project have only the vaguest notion of what a thesis entails. Students also may perceive the thesis as a formidable process; yet it does not need to be the case. All theses should be based on the compilation of knowledge and skills acquired throughout the student's graduate program.

However, no single definition of a thesis exists. What constitutes an appropriate thesis varies considerably between disciplines and even between faculty members within a discipline. Given this lack of uniformity regarding what a thesis is (and the resulting anxiety it invokes in students!), how can we describe a thesis? Here are four common characteristics.

First, a thesis is **an exercise in research**. You are asked to demonstrate your skills in using the methodologies of your field to examine a topic of interest to your discipline.

What constitutes research methodology varies widely across fields. For example, in the physical sciences, research often (but not always) involves the use of experimental procedures in a laboratory setting; in the humanities, research may involve a descriptive or interpretative analysis of some piece of literature; and in the social sciences, research may involve surveys or field studies.

Various academic departments have identified examples of good Master's theses written by Central Connecticut graduate students in Chapter 4, Table 4-2. You may want to look at the complete thesis (available in the Reserve Room of the Burritt Library) to get a better idea of the types of methodologies used. In addition, more recent theses have their abstracts posted on the Elihu Burritt Library Internet Services (www.ccsu.edu; Click on Library and find Theses & Dissertations). Theses that are numbered from 1,480 onward include their abstracts, which will help you then locate examples of full theses in the Reserve Room that approximate your area of interest. In addition, as of Spring 2002 semester, all students submitted digital copies of their theses and indicated their permission to include the thesis on the University Web Server, providing access to the complete thesis through the library's CONSULS.

A topic of interest to your discipline means an area of research that is generally viewed as fruitful by other researchers in the field. Within any discipline there are typically many sub-fields of interest. Research activities, such as a thesis, usually focus on a limited area, exploring a very specific issue or question. Again, looking at the titles of the theses listed in Chapter 4 will give you an idea of the specificity of the typical thesis.

A second characteristic of a thesis is that, no matter what the topic or methodology used, the intent of the research is to make a **contribution to the field**. A contribution is any "new" information that you can give to your discipline. This can take many forms: a test of a new theory, a reinterpretation of an old poem, or an evaluation of a curriculum.

The list is endless, but the common element is this: an addition to the knowledge base of your field requires you to have an in-depth understanding of some particular area of your discipline. And, you must know the current "state of the art" if you are to add to it.

In this regard, a thesis represents the capstone activity of your graduate degree program. To complete it successfully, you must demonstrate mastery over both a specific content area AND the methodology of your discipline. Indeed, the Master's degree has traditionally identified one as both an intelligent consumer of information and as a contributor to the field of study.

Third, a thesis represents **an opportunity to work closely with one or more faculty members in your field**. One characteristic of good graduate education is the opportunity for faculty and students to work together in a close relationship characterized as mentoring. While much of the content of any field can be taught in traditional classes, there is always some art to any discipline. These nuances are best conveyed in the context of a close working relationship. Working on a thesis under the tutelage of faculty provides an opportunity for learning that is not always found in other graduate school activities.

The fourth and final characteristic of a thesis is more personal in nature: A thesis is an exercise in self-discipline. Completing a thesis requires sustained initiative and focus for an extended period of time. Unlike classes, there are no fixed times which you must meet or specific deadlines imposed by the instructor. YOU provide the structure. The choice of topic and faculty advisors is largely yours. Indeed, faculty will generally look to you to be the initiator of your thesis work. A Master's degree acknowledges you as a professional in your field, and the mark of a professional is the ability to be self-motivated and self-directed.

To recap, a thesis is a written document that entails an independent research activity undertaken to explore some puzzle, problem or topic of interest to the field. The goal of this activity is to add new knowledge to the discipline and to demonstrate competency and worthiness of an advanced degree in the field.

Quantitative versus Qualitative Theses

Quantitative research studies typically yield statistical analyses of numerical data. Quantitative approaches--those that use "quantitative data obtained from samples of observations in order to... help make decisions to accept or reject hypothesized relationships ...between groups or classes of subjects" (Rudestam & Newton, 1992, p. 24)--have been pre-eminent. Thomas (2003) describes quantitative research as "the current status of people and events in terms of amount and frequencies" (p. 41). Three common types of quantitative methods involve surveys, correlation analyses, and experiments.

Qualitative approaches deal with the "meaning of things" (Lincoln & Guba, 1985). There is "greater emphasis on holistic description--that is, on describing in detail all of what goes on in a particular activity or situation, rather than on comparing the effects of a particular treatment (as in experimental research), or on describing the attitudes or behaviors of people (as in survey research)" (Wallen & Fraenkel, 2001, p. 432-433). In this way qualitative approaches are

“verbal portrayals of the current status of people and events in terms of kinds of characteristics and actions” (Thomas, p.33). Case studies, ethnographies, and narrative experiences are just a few methods associated with qualitative research. Qualitative approaches involve clear standards regarding the documentation of observations and their interpretation.

Studies also may combine research methods that include both types of quantitative and qualitative research (Thomas, 2003).

A Statistical Profile of Recent Master's Theses

The above description of “what is a thesis?” may have helped somewhat, but many students about to embark on a thesis have concerns about the “nuts and bolts.” Questions foremost on the minds of many students are: How long should it be? How many references should it have?

To help address these concerns, a statistical profile of some recent theses done at CCSU has been compiled. Table 1 below is based on an examination of 104 Master's theses completed between 1999-2007. (Please note that this is an informal study and does not include all theses completed during this period but only those available in the Burritt Library Reserve Room at the time these were examined.)

Table 1
Average Number of Pages and References
of
Theses from 2002-2010

| Average Total Number of Pages | Average Total Number of Pages Excluding Appendices | Average Number Of References |
|-------------------------------|--|------------------------------|
| 82.18 | 66.96 | 48.55 |

These figures represent an average across all disciplines. When theses are listed by discipline¹ (see Table 2), we can see that there are noticeable differences in length between fields. **Please note that there is not an automatic correlation between thesis length and/or number of references and thesis quality!** These figures are only to provide a preliminary frame-of-reference.

Table 2
Average Number of Pages and References
of
Theses by Discipline
(2002-2010)

| Discipline (N) ² | Ave. Total Number of Pages Excluding Appendices | Ave. Number of References |
|-------------------------------|--|------------------------------|
| Art Education (6) | 102.83 | 50.00 |
| Biology (16) | 56.69 | 56.75 |
| Biomolecular Sciences (15) | 41.13 | 36.07 |
| Communication (5) | 66.80 | 55.00 |
| Criminal Justice (17) | 38.24 | 25.47 |
| English (14) | 90.00 | 38.29 |
| Geography (10) | 97.80 | 65.50 |
| History (9) | 105.67 | 70.78 |
| International Studies (9) | 102.89 | 95.67 |
| Mathematical Sciences (17) | 44.24 | 25.00 |
| Modern Languages (5) | 112.60 | 80.40 |
| Psychological Science (11) | 44.45 | 54.91 |
| Reading (4) | 49.00 | 30.75 |

¹Only disciplines with at least 4 theses were included in the second table.

²Number of theses.

Chapter 2

The Thesis Process

This section attempts to describe, in some detail, the sequence of steps one goes through in planning, executing and writing a thesis.

Listed in Figure 2-1 are major steps in the thesis process. While the tabular presentation implies a linear progression, in fact, it rarely happens that way. For example, students could be selecting a thesis advisor (and perhaps other committee members) while they are identifying and/or refining their thesis idea. For ease of presentation, however, steps are discussed in the order shown.

The first and often most difficult step for many students is selecting a thesis idea. Many students expect that a thesis topic should suddenly come to them as a result of their own reflection. While at times this does happen, a more common process is that a person first identifies a general topic area and, then, following more examination of that area and consultation with his/her advisor, the student begins to focus more specifically on a topic that is appropriate for a thesis.

Thus, the first step is to identify a general research area that you would like to pursue. The sources of this research area are several: it may represent an area in which you have had a long-standing interest; it may be a topic you found stimulating in one of your classes; it may arise through discussions with instructors, your advisor, or classmates; it may come from reading current books or journals in your field; or it may come from some organization or group that has designated this topic of interest or a problem.

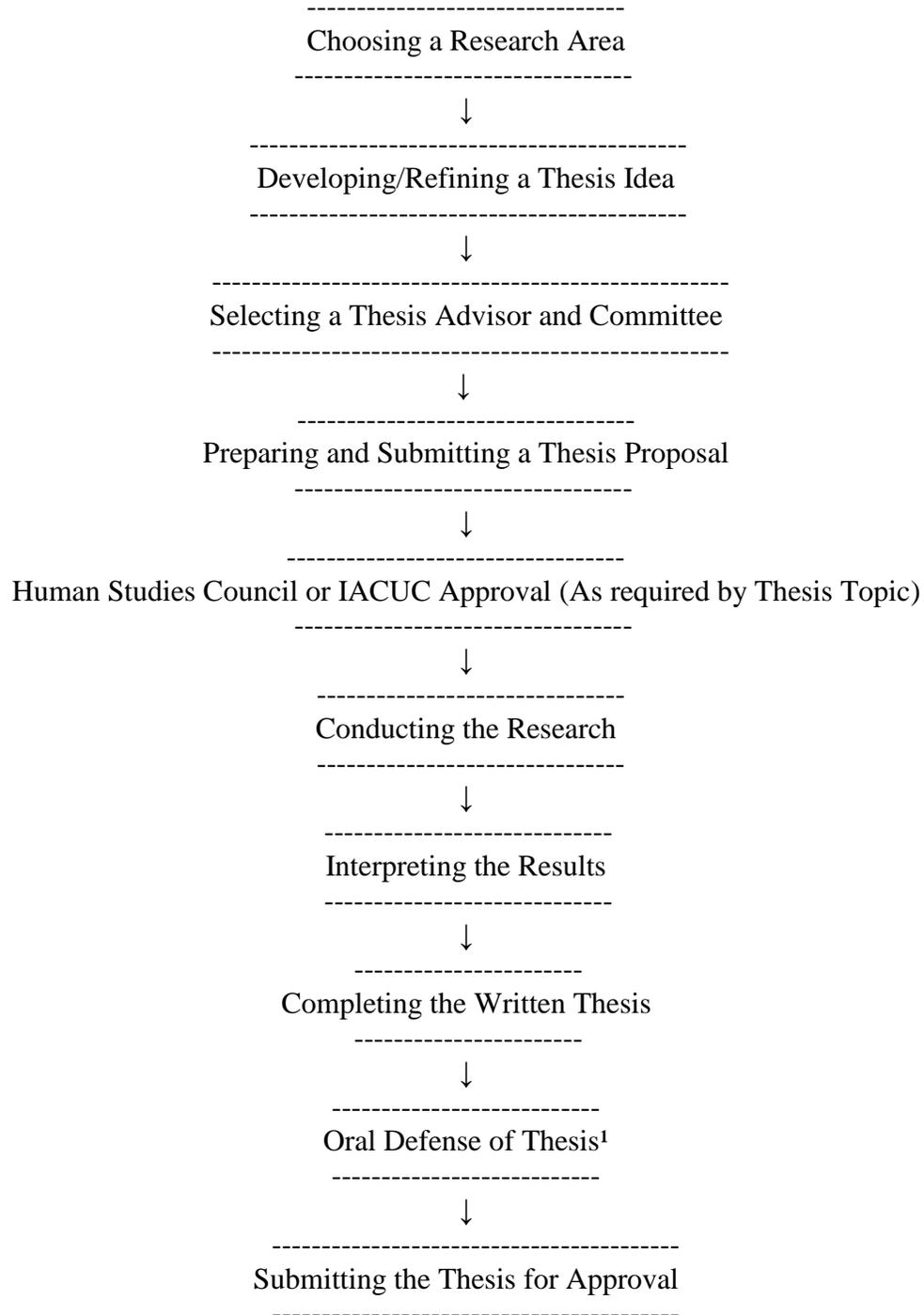
Some Do's and Don'ts for Selecting Thesis Topics¹

1. **Do** choose an idea that can sustain your interest over a long period of time.
2. **Do** write down interesting ideas, thoughts and quotations as you come across them in your readings as well as notes on discussions with faculty and peers, etc.
3. **Do not** choose topics that are overly ambitious. No thesis will be the final word on any particular topic. As one student put it: There are two types of theses: the great ones and the ones that are completed.
4. **Do not** go it alone. Coming up with a topic is a negotiated effort between you and your advisor. Regularly talk with your advisor about your ideas.

¹adapted from Rudestam & Newton, 1992.

Figure 2-1

Steps in the Thesis Process



¹Not required by all Departments, see Table 4-1

Once you've identified a general problem area in which you are interested, you will need to refine it into a specific, workable project. A key part of this process will involve a critical literature review of the field. This review will do several things: (1) make you aware of the current "state of the art" and knowledge base of the area; (2) help you begin to identify the gaps, *i.e.*, what key issues or questions around this topic need to be explored; and (3) inform you about the kinds of methodologies that have been used to explore aspects of this topic. Keeping good notes on the material you read (including all information needed for a proper bibliographic citation in the thesis style utilized in your department) will help you when you write your thesis proposal.

Today, almost all literature searches begin with (but are not limited to!) electronic search techniques. All major abstracts (*e.g.* Psychology Abstracts, Periodical Abstracts, Index Medicus) are computerized and can be searched via author, subject, and/or keywords. A complete description of how to use the various electronic databases is beyond the scope of this manual, but Burritt Library provides specific instructions on using the many databases on *Consuls* and in the reference section (third floor) of the library, as well as regularly offering classes in search techniques. Please consult with the reference librarian for further information.

As you read through the literature, you will gain a better understanding of what is known about your topic and key unanswered questions. Indeed, some people have likened the thesis process to a large jigsaw puzzle with a piece missing. Your research is to help fill in the gap in your field.

At this point, it is advisable to begin discussing your thesis idea with faculty in your department. If you have not already done so, you also want to identify a **thesis advisor** who will be very helpful as you determine the suitability of a potential topic. Suitability refers not only to the quality of the idea, but to logistical considerations that will have an impact on your ability to complete the thesis. Indeed, students often have good research ideas which, for a variety of reasons, they may be unable to carry out. **Five key issues** to consider: (1) time, (2) cost, (3) access to needed resources, (4) faculty support and (5) approval.

The first consideration is time: How long will the project take? A thesis should represent a substantial effort on one's part, but it is not expected to be one's life work. While there are no hard and fast guidelines, a thesis project (once a workable idea is developed) should take no more than 12 months. Many theses are done in considerably less time, but sometimes take considerable more time. A student who puts in regular, consistent effort on the project and meets regularly with the faculty adviser should be able to bring the thesis to a successful close. However, lack of sustained commitment can make completion of a thesis take years. If it seems that a possible topic would take a long time to complete (assuming regular effort), you should consider narrowing the topic or selecting another topic.

A second consideration is cost. Will the project entail considerable out-of-pocket expense? Most students expect to (and do) spend some money on research expenses, but the amount should not be excessive. If your project requires extensive travel or the use of expensive materials, you should explore possible sources of financial support. For example, the Graduate Student Association (GSA) offers funds to help support student research. (Visit the graduate

web site www.ccsu.edu/grad and click on Graduate Student Association (GSA) for funding information.) Your thesis advisor also may have access to research funds to help defray your costs. Depending on your topic, you might be able to get some support from business and industry, philanthropic foundations, and/or professional associations. If funds are not available, and there are substantial costs involved, you may want to rethink your project.

A third consideration is access to needed resources. If your work depends on access to certain library materials or other documents, *e.g.*, agency records, a key question is whether the materials are available. If certain materials are essential for the research, you should check whether thesis materials are obtainable before extensive effort is made in planning the study in more detail. Projects sometime require documents that turn out to be hard to obtain. You may want to set an arbitrary time limit on securing key material. If, for example, the materials you need are under another person's control, such as a school principal or agency director, you may choose to pursue the project (assuming other factors make it seem worthwhile) for no more than six weeks. If after that time, no clear progress has been made in obtaining the needed material, it may be prudent to rethink the feasibility of the project.

A fourth issue that falls under the heading of feasibility is the availability of faculty support. It is in your best interest to connect with at least one faculty member in your program who shares an interest in your proposed topic and who has expertise in this area. If no one in the department has the interest or expertise to assist you, your project probably won't get off the ground. Although some departments may allow you to go outside the department in finding committee members, it is essential that at least one member of the department have sufficient skills and expertise in your area of interest to be able to assist you. (Usually the department requires the thesis adviser to be a member of the department.) Without such assistance, you can get stuck at some point in your research and have no one to help you.

A final and very important concern involves clearance of a research proposal through institutional review procedures. Before submitting your proposal for review to the Human Studies Committee (HSC) or Institutional Animal Care and Use Committee, your thesis advisor needs to review and sign the related forms. While CCSU has its own set of Human Studies and Animal Care review processes (see Appendices D and E respectively), if your research involves another institution (*e.g.*, school, hospital laboratory), your research proposal may also require the review and approval of that institution. It is of critical importance that you identify the nature of the review mechanism, collect or prepare the documents you will need to submit, and allow sufficient time for review. In some cases, institutional review groups meet only a few times each year; failure to submit your project for review at the appropriate time may seriously delay your research schedule. It is important to remember that clearance from HSC or IACUC must be given before you begin any data collection.

If your topic seems suitable when tested against the above criteria, the next step is to formally establish your thesis committee. Individual departments have different requirements regarding membership on thesis committees (see table 4.1); some require two members, others three. In some departments, the committee must consist entirely of department members; in others, you may select qualified individuals from outside the department or even outside the university.

If you have been discussing your thesis ideas with your thesis advisor, you might already know who will serve on your committee. On the other hand, if you have developed your thesis idea without consultation with any faculty (which is not recommended!), you may not have a clear idea of who should serve on your thesis committee. In this case, you should talk with your program adviser and the department chairperson; they will know the areas of interest and expertise of the department faculty and will be able to recommend specific people.

In selecting your committee members, you should keep in mind their role. The purpose of the thesis committee is to help you develop and shape your thesis idea, to mentor you as you work on the project, and to evaluate the finished product--the thesis--that you produce. Consequently, your committee should consist of faculty who have a general interest in your proposed area of study, have the kinds of expertise needed to guide and assist you, and are individuals with whom you can work comfortably.

The need for interest and expertise on the committee's part is quite obvious, but you should clearly assess the types of competence needed. Often it is valuable to have individuals whose skills lie in different but complementary areas. For example, you might want one faculty member who is knowledgeable in the particular content area of your thesis and a second who has expertise in research methodology.

Theses (and thesis proposals) go through several revisions, reflecting both conceptual and stylistic changes. It is important to have committee members assisting you whom you trust and from whom you can accept honest and sometimes critical feedback. The thesis process presents an opportunity for a close working relationship that can be a powerful learning experience, but there has to be a certain amount of "personal chemistry" for this to develop.

Finally, thesis committee members must work well with one another. It is probably not wise to select individuals who have an uncomfortable working relationship.

Once you have chosen a committee, you will be talking with the members as you refine your interest area into a specific thesis topic and develop specific hypotheses or research questions. Typically, this is an iterative process that cycles between reading the literature and discussions with your committee members. It is during this period that you will be completing your critical review of the literature or your initial bibliography, depending on the thrust of your study. As you decide upon the specific research questions and methodology you will use, issues of experimental design, measuring instruments, statistical analyses and the like become important. It is crucial that you use the available expertise of your committee on these issues.

All the reading, deliberation and discussion with your committee should culminate in the writing of your thesis proposal. Chapter 3 describes the specific components of the thesis proposal. While the proposal is essentially an action plan, it can also represent, if done carefully, the first several chapters of your thesis. While many students think of the proposal as a hurdle one must negotiate before getting to the "real" work, in fact, a well-crafted proposal represents significant progress toward the end product. For more discussion of the preparation of a proposal, see Cone and Foster (1997); Krathwohl, (1988).

If the research involves either **human or animal subjects**, you and your committee must submit appropriate forms to the Human Studies Council or the Institutional Animal Care and Use Committee. Approval from the appropriate committee is required *before* data collection/research can begin. Indeed, starting your research without human or animal subject approval is unethical and potentially exposes you and the university to legal complications. (More information about these committees is given in Chapter 3.) After your thesis proposal has been reviewed and accepted by your committee, the committee should send a copy of the proposal and a signed Approval of the Thesis Proposal Form (see Appendix F) to the Assoc. V. P. for Academic Affairs/Dean, School of Graduate Studies.

Following submission and approval of the proposal (as well as from the appropriate subject committee as noted above), the research effort is begun in earnest: experiments are conducted; surveys are distributed; historical works are examined; curriculums are evaluated, etc. For many students this part of the process, which they expect to be tedious, turns out to be exciting. The intellectual challenge of the research endeavor is experienced in a way that is never captured in the dry accounts that typify most academic journals and books.

While engaged in this phase of your thesis, you should keep in close touch with your committee. Problems or questions will often arise (hopefully minor) that may require some modification of your research plan. Consulting with your committee about possible changes will minimize misunderstandings about such alterations later.

The analysis and interpretation of one's results are often the most challenging parts of the project. As the results are examined and initial hypotheses or expectations confirmed or negated, students begin to understand, more clearly than ever before, the human side of the research enterprise. Results are never as clear cut as they seem to be in print; different interpretations now seem plausible; shortcomings in methods are seen in hindsight; and directions for new research emerge. Once again, it is important to consult with your committee as you formulate the conclusions and recommendations that your work will add to your discipline.

If producing and interpreting the data (in whatever form they take) are more exciting than most students expect, writing the thesis is often more painful than students anticipate. Simply put, writing is hard work. If it is any consolation, it is hard work for everyone. There are, however, several **effective strategies** that you can follow that will make you more productive.

First, understand that revisions are inevitable and using and saving copies to your computer will make that task relatively painless. Also, word processing packages contain spelling and grammar checks which can help with the writing process. Moreover, there are specialized word processing programs available that can help you with format issues. If you don't own or have access to a computer, they are available on the campus, primarily the Micro Computer Lab in Marcus White Annex. Also, the Micro Computer Lab regularly conducts classes on word processing packages.

The second trick is to write something everyday--even if it is only a few paragraphs. Getting something down on paper (or stored on the computer) is the hard part; it is always easier to

revise once you've gotten the basic idea down. Don't worry if it doesn't sound “right” in its original form--that's what revision is for. If you've done a good job in putting your proposal together, you probably can use most or all of the proposal with some modification.

Thirdly, don't feel that you have to write the whole thesis before you can ask your committee for feedback on what you've written. It is best to submit materials (at least to your committee chair) one chapter at a time. Your committee is there to help you: let them.

A word to procrastinators. You really want to finish and get that degree. If it seems, somehow, that you just never seem to get down to writing, put pressure on yourself. Strike a deal with your thesis advisor. Agree to call weekly telling him or her of your progress. Call even when--and especially when--you have done nothing. Finding other students who are writing their theses can also be a good source of encouragement. Call regularly and commiserate. Set small but realistic goals.

Also, keep in mind that each semester you have not completed the thesis, you will see a grade of INC (Incomplete) on your transcript. A Continuing Registration fee of \$40 must be paid each semester when you do not register for any other courses. (Fee is due upon receiving the letter from the Dean, School of Graduate Studies. If you do not receive a letter, call Graduate Studies at 860-832-2363 to confirm that the fee has been charged to your pipeline account.)

Some departments (see Table 4.1) require that students completing theses must make **oral presentations, or defenses**, of their theses before their committees officially approve it. The oral defense is done after a completed version of the thesis has been presented to members of the committee to read. As Cone and Foster (1997) describe it:

Committee members will ask you to explain what you did, what you found, and what it means, and to discuss your research intelligently in the context of others' findings in the area. They will be looking for evidence that you (a) understand what you did and why, (b) can think about your project from a scientific perspective, and (c) can describe what you did to others (p. 256).

Typically a thesis oral will begin with the student making a short (15-30 minutes) presentation about his or her project followed by questions from committee members. Faculty may ask the student to explain the meaning of the results and how they might be interpreted from different theoretical perspectives undertaken in the thesis. It also is not uncommon for the committee to ask for minor revisions to the text of the thesis.

The best preparation for the oral defense is to be intimately familiar with what you did and the rationale for your approach. Be sure to talk with your thesis advisor about the format of the defense, *e.g.*, how long should it last, what type of presentation you're expected to make, etc. It may be helpful to talk with other students who have recently been through the process. For a more detailed discussion of the oral defense, see Cone and Foster (1997, Chapter 14).

Once your committee has approved your thesis, the instructions in Chapter 3 of this handbook regarding submission of the thesis should be followed. You will need to make several copies,

complete with abstracts, for submission. Your committee will sign an Approval of Thesis Form (Appendix G) which will be turned in with your copies. You also are required to submit an electronic version of your thesis in addition to the original and one copy.

It is always a good idea for you to check with your advisor or the Dean, School of Graduate Studies after your thesis has been submitted to be sure that you have completed all requirements for graduation. If you haven't completed an application for graduation (Appendix M), be sure to do so. (Applications also are available in the Graduate Studies Office, Barnard 102 or on the graduate website www.ccsu.edu/grad.) The Graduate School will conduct an audit of your planned program. If all requirements are met (including a grade submitted by your thesis advisor for the thesis) your name will be added to the list of graduates.

That's it! Go home and tell your significant other, family or friends to celebrate with you. You've earned it.

Chapter 3

University Policies and Requirements

Registering for the Thesis

To register for the thesis, **Plan A**, you must complete the Graduate Capstone Course Registration form (Appendix A), sign it and then obtain the necessary signatures of the Faculty Member and the Department Chair. The form must then be submitted to Barnard Hall 102 for the signature of the Dean, School of Graduate Studies. You should register for the thesis in the semester you intend to begin work with your Thesis advisor on the proposal. You must register using the *Capstone Course Registration Form* during the regular registration period. It will not be accepted after the add/drop period ends (i.e. after the third week of classes).

In order for you to register for the thesis capstone, graduate policy requires that you have at least a 3.00 overall GPA and that you have completed 18 credits in programs with 30-35 credits or 24 credits in programs with 36 or more credits.

Continuing Registration Fee (CREG Fee)

Students only register for their Capstone one time. During fall and spring semesters in which no course work is taken, matriculated graduate students involved in completing Theses (Plan A), Comprehensive Examinations (Plan B), or Special Projects (Plan C or E) must pay a Continuing Registration Fee of \$40.

If the student receives a grade of incomplete (INC), the student then pays a \$40 CREG fee each fall and spring semester until the thesis is completed and a grade change has been submitted to the Dean's office. This allows students continued access to computer facilities, the library, parking and the faculty.

Once the CREG fee is paid, students may be assured that student loans will not be recalled by loan agencies.

A matriculated graduate student who fails to pay the Continuing Registration Fee for the Capstone Plan A, B C or E will be withdrawn and lose his/her matriculation status. Matriculated graduate students withdrawn for this reason will have to re-apply and pay a Re-enrollment Fee of \$50 to regain their matriculation. The length of time to obtain a graduate degree will remain at six years from initial acceptance and courses included on the planned program of study.

The length of time to obtain a graduate degree will remain at six years from initial acceptance. For a student enrolled in a thesis, the capstone advisor can require regular progress reports from the student. Based on a lack of progress, the advisor can choose not to recommend an extension beyond the six-year time limit. Further, the advisor can choose to assign a failing grade for the thesis.

The Thesis Committee

Your work on a thesis will be under the direction of a thesis committee. The Policy of the University's Graduate Studies Committee is that all thesis committees will consist of, at minimum, a thesis advisor and one additional faculty member. The chairperson of your committee must be a full-time member of the Department in which you are earning your degree. Individual departments may have additional requirements in regard to the size and membership of the thesis committee beyond the above minimum. Please see Chapter 4 for the specific requirements of your department.

Thesis Proposal

A thesis proposal is, essentially, a written “action plan” of what you intend to do (your topic) and how you intend to do it (your methodology). Table 3-1 suggests the contents of a proposal for an investigative study, while Table 3-2 suggests the typical format of a descriptive or historical study. The proposal must be developed with the advice of your thesis committee.

Both types of studies begin with the specification of the title (*A*) of the proposed research followed by a description of purpose (*B*), and the specific hypothesis or research question(s) that your work will examine (*C*).

Next, you must address the question of need (pertinence): How is your proposed research a contribution to the field? This is often best answered by first providing a selective review of the related research (*D*), and, then, showing how your work will fill a gap, or, in other words, clarify, extend, or apply the work of others (*E*).

For investigatory or experimental theses, the next section of your proposal (*F*) describes the methodology you will use. It is important to provide enough detail of your research design and procedures so that members of your committee will have a clear picture of exactly how you plan to conduct your study. A major purpose of this section of the proposal is to force you to think through your study; the feedback you receive from your committee regarding your methods will make your thesis more focused and, ultimately, make the time you invest in it more productive. The methodology section will also describe how you intend to analyze or evaluate your findings in terms of the research questions you initially posed.

No single research effort or methodology can answer all the relevant questions on a particular topic. Consequently, for both type of studies you should note the limitations of your study (*G*), both methodological and conceptual. Identifying such limitations does not imply a shortcoming of your work, but rather, suggests a realistic appraisal of the boundaries of any single, time-limited research endeavor.

The final section of the two outlines includes references mentioned in your proposal or the beginning bibliography (*H*).

A note on writing style: Different disciplines use different formats or style sheets for their

professional writing. The formats used by Departments at CCSU *include*: ACS (American Chemical Society Style Guide; American Chemical Society), APA (Publication Manual of the American Psychological Association; American Psychological Association), *Campbell* (Form and Style: Research papers, reports, thesis; Slade, Campbell & Ballou), CBE (Scientific Style and Format: The CBE manual for authors, editors and publishers; Council of Biology Editor's Style Manual Committee), *Chicago* (The Chicago Manual of Style: For authors, editors and copywriters; University of Chicago Press) and *MLA* (The MLA Style Manual and Guide to Scholarly Publishing; Gibaldi). Check Chapter 4 for the style used by your department and follow that style in writing your proposal.

Once your proposal has been approved by your committee, a copy of the proposal and an Approval of Thesis Proposal Form, signed by your committee or at least by your thesis advisor, must be sent to and signed by the Assoc. V. P. for Academic Affairs/Dean, School of Graduate Studies. (See Appendix F.)

Table 3-1

A Sample Outline of an Investigative or Experimental Thesis

- A. Title of proposed thesis
- B. Statement of purpose(s)
- C. Stated Hypothesis/Research Questions
- D. Relationship of study to related research and analysis of pertinent research (literature review)
- E. Statement of need
- F. Investigatory or experimental procedures to be followed:
 - 1) subjects to be used
 - 2) measures used (surveys/interviews/psychological instruments, etc)
 - 3) experimental design or intervention
 - 4) procedures to be followed
 - 5) plan for the analysis of data
- G. Limitations of your project (limiting factors which affect study)
- H. References

Table 3-2

A Sample Outline of a Descriptive or Historical Study

- A. Title of proposed thesis
- B. Statement of purpose(s)

- C. Stated Hypothesis/Research Questions
- D. Relationship of study to related research and analysis of pertinent research (literature review)
- E. Statement of need
- F. Proposed chapter development with major subheadings
- G. Limitations of your project (limiting factors which affect study)
- H. Beginning Bibliography

For those doing a descriptive or historical thesis, you will follow your statements of purpose and need with a preliminary description of the chapters of the thesis, identifying major subheadings (F).

Use of Human Subjects or Animals in Your Research

In keeping with current federal standards and regulations, all research involving human or animal subjects must be approved by the appropriate campus committee: the Human Studies Committee (HSC) or the Institutional Animal Care and Use Committee, (IACUC). These groups function to insure that appropriate safeguards are used to protect the rights and well-being of research subjects. See Appendix D for a more complete description of these committees. HSC approval and exemption forms are contained on their website as noted in Appendix D. Appendix E contains the Institutional Animal Care and Use Committee Approval Form.

In cases where research is being performed at another institution involving human or animal subjects, approval must be obtained from appropriate review committees at that institution. Copies of such approval should be attached to the CCSU forms to expedite the review process.

Thesis Style Requirements

In Chapter 4, you will find style requirements of individual departments. However, the Graduate School also has certain style guidelines that govern: (a) the cover pages of the thesis and thesis abstract, (b) margins, (c) paper quality, and (d) the biographical note. These requirements assure that your thesis is submitted in a format that is suitable for binding and retention in the university library. There also are guidelines for submission of electronic versions of your thesis.

Thesis Cover Page

The format of the thesis cover page is shown in Appendix H.

Abstract Cover Page

Each thesis must include a 200-300 word abstract that summarizes the purpose, methodology, findings and conclusions of the study. The format of the cover page for the abstract is shown in Appendix I.

Guidelines for Writing an Abstract

An abstract serves as a summary of the thesis. It should contain the following elements: (1) a summary of the study's purpose or hypothesis; (2) brief statements regarding the methods of investigation; (3) a description of the results, including where and how you obtained them; and (4) conclusions and/or recommendations, which relate back to the original problem or hypothesis. When writing an abstract, it is important to be exact, concise, and unambiguous. The abstract should be written with approximately 200-300 words or from one to two pages. An example of a thesis abstract is provided in Appendix J. Examples are also found on the University's library home page where the theses collections are found.

Margins and Spacing

Since the original copy of the thesis will be bound, there should be a left margin of at least one and one-half inches. Check the style guide that you are following for top and bottom margins as well as the line spacing, which should be double.

Paper Quality

Use 20 lb. weight bond paper for the original (including the abstract), i.e., the copy that will be bound. Other copies may be made on regular (no rag content) paper.

Biographical Note

You may include a short biographical statement as the last page of your thesis. Appendix K provides an example. At minimum, you may summarize your academic background and honors and pertinent employment history. Additional information--about your family, your interests, your long-term goals--is acceptable.

Policies Regarding Approval of Theses

Central Connecticut State University follows certain procedures regarding approval of theses (see below). Individual departments may set additional criteria. (See Chapter 4.)

After your thesis has been approved by your thesis committee, the chair of the committee must submit multiple copies of the thesis and abstract, along with an Approval Of Thesis Form (Appendix G) signed by all members of the thesis committee, to the Assoc. V. P. for Academic Affairs/Dean, School of Graduate Studies.

The following should be submitted to Graduate Studies, Henry Barnard 102:

1. The original thesis.
2. A copy of the thesis.
3. In a separate folder, three copies of the abstract, each with its own cover page.
4. An electronic version of the thesis.
5. Thesis Reproduction Approval Form (See Appendix L).

The original and the copy of the thesis should be put preferably in a clamp-type binder as per the instructions below. (If one is not available, students should find another appropriate type of binder. However, students should **NOT use** ring binders or any other means that would create perforations to the thesis; these will not be accepted.)

Instructions regarding submission of thesis (Do not punch holes in any pages.)

First Binder: The first clamp-type binder (or another appropriate type of binder) should contain the *original abstract and the original thesis*. Place a label, with your name and title of the thesis, on the center of the cover, and a second label-stating ORIGINAL, in the upper right hand corner. This binder is sent to the library where it is bound and stored.

Second Binder: The second binder should contain a copy of the abstract and the thesis. Again, place a label with your name and thesis title on the center of the cover and put a second label stating COPY in the upper right hand corner. This copy is returned to your department.

Remaining Abstracts: Enclose the remaining three abstracts in one clear report cover. Staple each set. The Graduate School will send one copy of the abstract to the Dean of your academic school; one will be held in the Graduate School Office; and one will be retained in your academic file.

In addition to the original and copy of the thesis, students may prepare final copies of the thesis for their thesis advisor, other members of their committee, and themselves if they wish.

Digitized/Electronic Submission

Students completing theses are required to submit a copy of their thesis in digital format. The specific procedures are explained below. Both the digital copy and the signed Thesis Reproduction Approval Form (Appendix L) should be submitted to the Graduate School Office at the same time you submit hard copies and abstracts of your thesis.

The world of scholarship depends on people making their research available to others. Consequently, Elihu Burritt Library has created an online web list of over 1600 CCSU theses. There has been an increase in interest in our theses since this list went live. This sharing of information stimulates education and research. It also ensures that many people give credit to you for your work and that your research may be cited in others' publications, which adds to your prestige and can help your future advancement.

Since you spent a great deal of time on your research, it should encourage you to know that others are requesting access to your work. Your literature review may guide others, and your results may save others the time of replicating your study; instead they can build on your research study. It would greatly aid graduate education if as many of these were made available, either through Interlibrary Loan or accessible full-text through the University Internet Servers.

In order to preserve your University Thesis in a digital format, the Graduate School **requires that you submit a copy of your thesis in digital format.** Once submitted, and if permission is granted, your thesis will be converted to a format suitable for access via the Internet. Only with permission does the library mount your thesis on a University Web Server. You and your thesis advisor must sign the form (Appendix L). Internet users will be able to view your thesis through CONSULS (<http://www.consuls.org/>) once permission is provided.

Guidelines and Specifications for Submitting Your Thesis in Digital Format:

The library can accept a digital copy of your thesis in one of several formats. In most cases the original word processing format used to write the thesis is acceptable without modification. Current or recent versions of Microsoft Word, WordPerfect, and other formats are acceptable. Charts or graphics may be included within the word processing file, or as separate graphic files in GIF, PNG or JPG format.

Other alternative formats for submission include: Microsoft RTF (Rich Text Format), HTML (Hypertext Markup Language, including graphics as separate GIF or JPG files), or Adobe Acrobat (PDF). If an alternative format is submitted, please also include the original word processing document (Microsoft Word, WordPerfect etc).

Computer files may be submitted on the following media:

CDROM (preferred)
Zip Drive Disks

If your thesis was produced using very old, or unusual word-processing or editing software, or if you require assistance converting your document for submission, please contact the Library Systems Office at 860-832-2082 or 860-832-0064. In most cases, the library staff should be able to help you convert your thesis to a format acceptable for submission.

Please refer to Appendix L. Complete the form and attach it along with your Thesis Approval Form.

Capstone Rubric

The Graduate Studies Committee has developed and approved a capstone rubric form (Appendix C). The rubric provides specific areas that all theses should contain and indicates levels by which theses will be assessed by committee members.

Thesis Deadlines

For the Commencement in May, copies of the approved thesis, abstracts, digitized/electronic copy, and signed approval form must be submitted by April 15 in order to have your thesis included in the Commencement Booklet. If deadlines are missed for inclusion in the commencement booklet, students may still submit their thesis following the final examination deadlines for fall and spring semesters. The deadlines for students submitting their thesis in summer is August 15. The Assoc. V.P. for Academic Affairs/Dean, School of Graduate Studies must review and approve your thesis. You will be notified in writing, usually within two weeks, that your thesis has been accepted. If any changes are required, you will be informed of the actions you must take before final approval.

Chapter 4

Specific Department Requirements

Beyond the aforementioned Graduate School requirements, individual departments may set additional criteria or policies regarding thesis work. This chapter lists these specific departmental criteria.

Departmental thesis requirements may include committee size and/or composition, style, format, and evaluation process, such as an oral defense of thesis. Table 4-1 presents a summary of these requirements.

Some departments have also selected outstanding theses to serve as examples for students (see Table 4-2). Copies of all theses written by graduate students at Central Connecticut State University are available in Burritt Library. (Theses completed from spring 2002 onward are available through CONSULS, provided students have given permission.)

Note: Some programs do not offer the completion of a thesis as a capstone option. Students should refer to the Graduate Catalog or contact the department to discuss capstone options for completing the Master's degree. The School of Graduate Studies has a separate Handbook for the Special Project capstone, Plan C or E. Guidelines also have been established for Plan B, the comprehensive examination.

Table 4-1
Department Requirements

| Department | Program | Committee Size (minimum of 2 required) | Committee Membership | Style Format | Dept. Chair Signature | Other Requirements |
|----------------------------------|--|---|--|--|-----------------------|--|
| Art | MS Art Education | 3 | Must be graduate advisors at CCSU | APA or MLA depending on thesis type | Yes | |
| Biology | MS Anesthesia MS Biology MA Biology | 3 | Thesis advisor and a minimum of two other members | See Dept. for Guidelines | No | Oral Defense and requires Chair's signature. |
| Biomolecular Science | MA Biomolecular Sciences | 3 | Thesis advisor and two full-time faculty "readers." | See Dept. for guidelines | No | Oral Defense (public & committee) |
| Communication | MS Communication | 3 | At least 2 dept. members with terminal degree | APA | No | Oral Defense |
| Computer Information Technology | MS Computer Information Technology | | | | | Thesis option not available |
| Counseling and Family Therapy | MS Counselor Education MS Marriage & Family Therapy | 2 | One of whom must be a full time faculty member in department | APA | Yes | Oral Presentation |
| Criminology/ Criminal Justice | MS Criminal Justice | 2 | Thesis advisor and reader approved by thesis advisor | APA | Yes | Oral Defense |
| Design (Graphic Information) | MA Information Design | | | | | Thesis option not available |
| Educational Leadership | MS Educational Leadership | 2 | Must hold terminal degree | APA | Yes | ED 598 as pre-requisite |
| Engineering Technology | MS Engineering Technology | 2 | Must be members of the department | Chicago | No | Public Presentation to faculty and students in the program |
| English | MA English MS TESOL | 2 | Must be members of the department | MLA(for Literature) APA (for TESOL) | Yes | Public Presentation to faculty and students in the program |
| Geography | MS Geography | 2 | Must be members of the department | Chicago | No | Oral defense |
| History | MA History | 2 | Must be members of the department. Depending on topic, committee may include member outside of dept. or university | Chicago | Yes | Thesis Option- not available for MA Public History students. |
| International and Area Studies | MS International Studies | 2 | Full-time faculty teaching courses related to IS program | APA or MLA | Yes | |

Table 4-1 (continued)
Department Requirements

| Department | Program | Committee Size (minimum of 2 required) | Committee Membership | Style Format | Dept. Chair Signature | Other Requirements |
|---|--|---|---|------------------------------|-----------------------|---|
| Manufacturing & Construction Management | MS Construction Management MS Technology Management | 2 | Advisor and at least one more faculty member | APA | Yes | Public presentation to faculty and students in the program |
| Mathematics | MA Mathematics MS Mathematics MS Data Mining | 2-3 | At least 2 must be full time members of the department | APA | Yes | Oral defense may be required |
| Music | MS Music Education | 2 | Full time faculty | APA | Yes | |
| Modern Languages | MA Modern Language | 2-3 | Committee size and membership depends on topic | MLA | No | |
| Physical Education & Human Performance | MS Physical Education | 3 | Full time faculty May have one from outside dept. | APA | Only if on committee | Oral presentation to faculty and graduate students |
| Physics/Earth Science | MS Natural Science-Physics Earth Science Science Education | 3 | At least one member must be knowledgeable in content area of thesis; one in methodology to be employed; one committee member may be from outside the department | See Committee for guidelines | Yes | Oral defense to committee with at least two other faculty invited to attend |
| Psychological Science | MA Psychology | 3 | Chair must be full-time Ph.D. | APA | No | Oral Defense |
| Reading/ Language Arts | MS Reading | 2-3 | Full-time faculty | APA | No | |
| Special Education | MS Special Education | | | | | Thesis option not available; only Plan E |
| Teacher Education | MS Early Childhood Education. MS Educational Studies MS Elementary Education | 2 or more | May include one faculty member outside the dept. at the discretion of the thesis advisor | APA | Yes | Oral Defense |
| Technology & Engineering Education | MS Technology & Engineering Education | 2 | Depending on topic, committee may include member outside of department or university | APA | Yes | |

Table 4-2
Examples of Outstanding Theses

Anesthesia

Kelly, Barbie
(2003) A Comparison of Ondansetron and Dolasetron in the Prevention and Treatment of Postoperative Nausea and Vomiting in Outpatient Anesthesia

Art

Fogarty, Michelle L.
(2002) The Artistically Talented: Modifications in the Middle School Art Room

Biology

Tipton, Michele L.
(2010) Chemical Water Quality Assessment of the East Branch of the Eightmile River in Lyme/Salem, Connecticut

Giannelli, Julie
(2004) Shell Selection Behavior of the Hermit Crab, Pagurus Longicarpus

Knorr, Linda
(2004) Black Bear Mark-Recapture Study Using Remote Cameras

Murphy, Jennifer
(2003) An Investigation of the Reproductive Ecology of an Intertidal Barnacle, Semibalanus Balanoids at Avery Point, Connecticut, Long Island Sound

Biomolecular Sciences

Banda, Erin
(2010) Identification of the First Differentiation Event Involved in Human Embryonic Stem Cell-Derived Neural Lineage Specification

Damiano, Jeff
(2007) The Role of E-Cadherin in Parietal Endoderm Outgrowth Migration

Ferrazzoli, Alexander
(2007) Vesicular Packaging of Serotonin by Astrocytes

Table 4-2 (cont'd)
Examples of Outstanding Theses

Communication

| | |
|--------------------------|---|
| Wnuk, David J. (2004) | Neutralizing the Effect of Organizational Structure Has On Communication Through the Implementation of Strategic Communication |
| Hadden, Jackie (2003) | A Pilot Study of the Relationship Between Competitive Athletic Participation and Transformational Leadership Ability: A Communication Perspective |
| Riley, Shannon (2002) | Network Ties as a Predictor of Realistic Job Previews |

Criminology

| | |
|-------------------------|---|
| Delude, Brian (2010) | Customer Satisfaction in the Criminal Justice System |
| Hill, Brian (2001) | Juvenile Detention Decisions: A Study of the Influence of Legal and Extralegal Factors |

English

| | |
|---------------------------|--|
| Loucks, Jessica (2009) | The Nature of Nurture: Fluids as Indicators of Naturalness in <i>Macbeth</i> |
| Elterich, Geoff (2007) | Taratino: Exposing the Spectacle of the Postmodern Condition |

History

| | |
|--------------------------|----------------------------------|
| Gartner, David (2003) | The Failed Promise Of Good Roads |
|--------------------------|----------------------------------|

Modern Languages

| | |
|---------------------------|--|
| McCarthy, Brian (2007) | Serpents in the Desert: Soteriological Pharmaka or Ambivalences in the Christian Doctrine of Salvation in the Mythological Drama of Calderon |
|---------------------------|--|

Table 4-2 (cont'd)
Examples of Outstanding Theses

Modern Languages (Continued)

Kremens, Elzbieta
(2005) La Presencia Morisca en Don Quijote: Cercantes y Su Vision Sobre Esta Minoria Marginada

Werstler, Jessica
(2002) Total Physical Response Storytelling: A Study in Actively Engaging Students Across the Modalities

Music

Dickson, Rob
(2007) Applying the Adornian Concept of Listening Regression to the Significance of Violence in Contemporary Music

Physical Educaton &
Human Perfomance

Keithan, Christopher
(2010) Effect of Motivational Music on Physical Activity Levels of Second Grade Physical Education Students

Failla, Michelle
(2006) Perceptions of Weight Training in Division 1: Collegiate Male and Female Soccer Players.

Psychological Science

McKay, Elizabeth
(2006) Psychological Sense of School Membership Mediates the Relationship between Attachment and Academic Motivation in Adolescents.

TESOL

Bennett, Scott
(2009) Socio-emotional and Task Based Communication in Massively Multiplayer Online Role Playing Games (MMORPGs) Revisited: An Account of Non-native Speaker Discourse.

References

- American Chemical Society (1986). *The ACS style guide: A manual for authors and editors*. Washington, DC: ACS.
- American Psychological Association (2001). *Publication Manual of the American Psychological Association* (5th Ed.). Washington, DC: Author.
- Cone, J., & Foster, S. (1997). *Dissertations and theses from start to finish*. Washington, DC: American Psychological Association.
- Council of Biology Editors Style Manual Committee. (1994). *Scientific style and format: The CBE manual for authors, editors and publishers* (6th Ed.). Cambridge: Cambridge University Press.
- Gibaldi, J. (1998). *The MLA style manual and guide to scholarly publishing*. New York: The Modern Language Association of America.
- Krathwohl, D. (1988). *How to prepare a research proposal: Guidelines for funding and dissertations in the social and behavioral sciences*. Syracuse, NY: Syracuse University Press.
- Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.
- Rudestam, K., & Newton, R. (1992). *Surviving your dissertation*. Newbury Park, CA: Sage.
- Slade, C., Campbell, W., & Ballou, S. (1994) *Form and style: Research papers, reports, thesis*. (9th Ed.). Boston: Houghton Mifflin.
- Thomas, R.M., (2003) *Blending Qualitative and Quantitative Research Methods in Theses and Dissertations*. Thousand Oaks, CA: Corwin Press, Inc.
- Wallen, N. and Fraenkel, J. (2001). *Educational Research: A guide to the process* (2nd Ed.). New Jersey: Lawrence Erlbaum Associates.
- University of Chicago Press. (1982). *The Chicago manual of style: For authors, editors and copywriters* (13th Ed.). Chicago: University of Chicago Press.

Appendices

Appendix A



Graduate School--Central Connecticut State University, New Britain CT 06050
GRADUATE CAPSTONE COURSE REGISTRATION FORM for Plan A (Thesis) and Plan C (Special Project)

| | |
|---------------------|---------------------|
| Name: | CCSU ID #: |
| Street: | Telephone Nos.: (H) |
| City: | (W) |
| State/Zip: | Email Address: |
| Country (if appl.): | Date: |

| | |
|---|--------------------------------------|
| Program (e.g., Math, Reading, Spanish) and Degree (e.g., MS, MA): | |
| Current Graduate Overall GPA: | Number of Program Credits Completed: |
| ***A student must have at least a 3.00 overall GPA to be eligible for all graduate program capstones and have completed 18 credits (for programs with 30-35 credits) or 24 credits (for programs with more than 36 credits).*** | |

| | | | |
|--|--|------|---|
| Capstone Title: | | | |
| Capstone Type | Academic Term | Year | Student Status |
| <input type="checkbox"/> Plan A: Master's Thesis | <input type="checkbox"/> Fall <input type="checkbox"/> Spring | | <input type="checkbox"/> Full-time <input type="checkbox"/> Part-time |
| <input type="checkbox"/> Plan C: Special Project | <input type="checkbox"/> Summer (only by special approval of the Dean of Graduate Studies) | | |

The sponsoring faculty member completes this section with the graduate student:

| | | |
|--|-------------------------------------|-----------------|
| Proposed Course No. (e.g., ENG 599, TE 596): | Average Weekly Contact Hrs. (3, 6): | Credits (3, 6): |
|--|-------------------------------------|-----------------|

Meeting Place (classroom, office, or other location):

Evaluation Schedule:

Planned Readings and Other Assignments:

Means for Evaluation:

Required Capstone Written Agreement/Approvals:

Submitted by _____ Date: _____
Student's Signature Printed Name

Sponsored by _____ Date: _____
Faculty Member's Signature Printed Name

Approved by _____ Date: _____
Department Chair's Signature Printed Name

_____ Date: _____
Dean of Academic School's Signature Printed Name

_____ Date: _____
Dean of Graduate School's Signature Printed Name

Note: faculty load credit of .5 is awarded when capstone advisor submits student's thesis or special project proposal approval form and thesis or special project proposal to the Graduate School Dean; final .5 is awarded when advisor submits completed capstone work and final approval form to the Graduate Dean.

Effective 11/2005. Distribution of Completed Form: original-Enrollment Center; copies-faculty member, chair, student, academic dean, Graduate School

Appendix B

THESIS CHECKLIST

The following checklist is provided to assist you with the organization of your thesis and is to be used in conjunction with CCSU's The Master's Thesis: A Handbook and Writer's Guide for Graduate Students. It is suggested that you check all the boxes below to be certain your thesis contains each of the items before you submit your thesis for review.

The paper format of your thesis “original” and “copy” should be assembled in the following order (see p. 19 for additional instructions):

Original Copy

- Thesis Cover Page** (Format according to Appendix H)
- Abstract Cover Page** (Format according to Appendix I)
- Abstract**
Use Guidelines on page 17 of this manual and follow example of a thesis abstract according to Appendix J. The abstract size should be between 200-300 words.
- Table of Contents**
- Text**
Style and departmental guidelines and requirements are given in Table 4-1, pp. 22-23
- List of References**
- Appendices**
- Biographical Statement** (Format according to Appendix K)

Other submission requirements:

- Three copies of the abstract, each with its own abstract cover page**
Instructions provided on p. 18.
- Approval of Thesis Form** (See Appendix G)
Form must be signed by all members of the thesis committee.
- HSC or IACUC Approval Forms, as appropriate**
- Thesis Reproduction Approval Form** (See Appendix L)
A copy of this form must be completed and signed.
- Digitized /Electronic Copy of Thesis**
Guidelines for submission are on pp. 19-20.

Appendix C

Capstone Rubric

Student's Name: _____

CCSU ID: _____

Faculty Assessors: _____

| Capstone Rubric (Plans A/C/E) | Does Not Meet Expectations (1) | Meets Expectations (2) | Exceeds Expectations (3) |
|---|---|--|---|
| 1. Definition of Project/Introduction Or Statement of Hypothesis | Introduction does not clearly explain the nature and structure of the capstone, its rationale and relevance to discipline. | Introduction clearly presents the capstone, its nature, relevance and structure. | Introduction makes strong case for the value the capstone provides to the discipline, as well as presenting its nature and structure. |
| 2. Thesis/Argument | Argument is unclear, inconsistent, inappropriate, or not suitably original. | Argument is appropriate, clearly presented, consistently applied, and suitably original. | Argument is clear, consistent, sophisticated, and strikingly original. |
| 3. Familiarity with/and Grounded in Literature. Knowledgeable of the current state of discipline | Does not indicate familiarity with literature; has large gaps and shows little grounding of the capstone in the literature. No substantive engagement. | Displays familiarity with reasonably full range of literature; demonstrates an appropriate grounding and engagement with the literature. | Displays impressive familiarity with full range of and grounding in literature; engages with it substantively and productively. |
| 4. Methodology or Plans for the Project | Methodology is not clearly presented, not appropriate or not adequately applied to capstone. | Methodology is clearly presented, relevant and appropriately applied to capstone. | Methodology and project are mutually enriching. |
| 5. Results/Findings/ Demonstration of Thesis Argument and Claims | Outcomes minimally address research questions and fail to demonstrate its claims persuasively. Presentation minimally addresses research questions; structure reflects a lack of organization, detail, understanding and/or accuracy. | Outcomes address research questions. Presentation of evidence uses argumentation and is reasonably persuasive in making connections with research ideas. | Outcomes thoroughly address research questions. Presentation of evidence conveys a mastery of argumentation. Structure provides a coherent and clear focus of new understandings. |
| 6. Summary/ Conclusion or closing argument | Capstone summary is minimally supported by results and/or findings; exhibits a lack of original ideas, personal interpretation of findings, and/or an inability to draw an inventive synopsis. | Summary sufficiently supported by results and/or findings while adequately and accurately summarizing the capstone. | Summary presents carefully analyzed information to present inventive and originally developed decisions and/or conclusions supported by results and/or findings. |
| 7. Bibliography/ References | Lack of proper format and limited details with many sources missing or incomplete. | Bibliography/References are mostly complete and correctly formatted. Capstone contains a variety of sources. | Bibliography/References are complete (all sources shown) and correctly formatted; inserted to validate evidence. |
| 8. Writing | Writing is unclear, distracts from meaning, is not at appropriate level, or contains excessive errors. | Writing is clear and appropriately sophisticated, with virtually no errors, and supports meaning. | Writing is at or near professional level, has no errors, and enhances meaning. |

Totals _____

Overall Score _____

Appendix D

Description of the Human Studies Council and the Institutional Animal Care and Use Committee

USE OF HUMAN PARTICIPANTS OR ANIMAL SUBJECTS IN YOUR RESEARCH

In keeping with current federal standards and regulations, **all research involving human participants or animal subjects must be approved by the appropriate campus committee:** the *Human Studies Committee (HSC)* or the *Institutional Animal Care and Use Committee (IACUC)*. These groups function to insure that appropriate safeguards are used to protect the rights and wellbeing of research subjects.

Human Studies Council - Institutional Review Board

ALL graduate program final projects - theses, dissertations and special projects- that involve human research participants, must be reviewed by the Human Studies Council (HSC).

WHY? The HSC is CCSU's Institutional Review Board (IRB), the body federally mandated to protect the welfare and autonomy of human participants in research conducted by CCSU faculty, students and staff. The function of the Human Subjects Council is to protect the rights and welfare of human research participants and to assist faculty and students in developing ethical research protocols.

WHAT? The HSC conducts a risk-benefit analysis in which committee members review the study's proposed objectives, recruitment process, interventions/measures, consenting process, data security plans and intended method of report reporting findings. The HSC works with an investigator to identify and minimize potential risks in study involvement –either by direct participation in the data collection phase, or due to breaches in data security/privacy after participation is complete.

HOW? Customarily, *minimal risk* studies with adult volunteers are approved quickly through an expedited review process. However, research projects with protected populations (such as children, prisoners, mentally disabled persons) or projects that involve deception or *greater than minimal* risk go through a full review process. The full review process can be done only at convened meetings of the Human Studies Council. These meetings occur throughout the year; the meeting schedule is posted on the HSC website.

WHEN? Before submitting a proposal for review, and to comply with federal regulations, researchers must complete a research ethics education module. CCSU endorses the National Institutes of Health [Protecting Human Research Participants](#) tutorial to meet this educational requirement. The student's *Certificate of Tutorial Completion* and all relevant proposal addenda must accompany a Protocol Submission Form before the HSC can begin the review process. The HSC recommends submitting proposals two to four weeks before study activities are scheduled to begin.

WHERE? Faculty Advisors are to review student proposal materials and submit them on their advisee's behalf to hsc@ccsu.edu.

For more information about the CCSU Human Research Protections Policy, graduate research requirements and HSC submission process and forms, contact the HSC Administrator at 860-832-2366 or hsc@ccsu.edu or visit the HSC website (www.ccsu.edu/humanstudies) or Office of Grants and Funded Research in Barnard 120.

Institutional Animal Care and Use Committee (IACUC)

The IACUC is responsible for oversight and evaluation of the animal care and use program at CCSU. Its functions include inspection of facilities; evaluation of programs and animal-activity areas; review of proposals for the use of animals in research, testing or education; and the review of concerns involving the care and use of animals at CCSU.

The following should be considered in the preparation and review of animal care and use protocols:

- ♦ Rationale and purpose of the proposed use of animals
- ♦ Justification of the species and number of animals requested. Whenever possible, the number of animals requested should be justified statistically.
- ♦ Availability or appropriateness of the use of less-invasive procedures, other species, isolated organ preparation, cell or tissue culture, or computer simulation.
- ♦ Adequacy of training and experience of personnel in the procedures used.
- ♦ Unusual housing and husbandry requirements.
- ♦ Appropriate sedation, analgesia and anesthesia.
- ♦ Unnecessary duplication of experiments.
- ♦ Conduction of multiple major operative procedures.
- ♦ Criteria and processes for timely intervention, removal of animals from a study, or euthanasia if painful or stressful outcomes are anticipated.
- ♦ Post procedure care.
- ♦ Method of euthanasia or disposal of animals.
- ♦ Safety of work environment for personnel.

The Application for Project Approval (APA) form is available from Ruth Rollin, Chair IACUC, located in Copernicus Hall. Each APA is reviewed by the IACUC, which includes a veterinarian. Some protocols may be approved by an expedited process and may require two to three weeks. Other protocols require a full review process that can be done only at a regularly convened meeting of the full IACUC. The full committee generally meets four times a year. Timely submission of proposals is especially important if approval is required before submission of research proposals for university or external grants.

Appendix E

Start with a dream. Finish with a future.



Application for Project Approval
Form Revised 12/14/11 10:00 a.m.

Central Connecticut State University
Institutional Animal Care and Use
Committee (IACUC)
Chair: Ruth Rollin, 860-832-2659,
rollin@mail.ccsu.edu

OFFICE USE ONLY

Project # _____
Approval Date _____
Expiration Date _____

PLEASE TYPE:

A. ADMINISTRATIVE DATA:

Project Director:

Department:

Telephone: Emergency: E-Mail:

Project Title:

Initial Submission or Renewal or Modification of Project Number

If a teaching project, what is course number:

If a research project, what is the funding source: Submission Deadline:

Proposed Project Start Date: Project End Date:

B. ANIMAL REQUIREMENTS:

Species: Age/Weight/Size: Sex:

Stock or Strain:

Source(s):

Housing Location(s)(If animals will be housed in lab or anywhere else outside the primary facility for more than 12 hours, provide building and room number.):

Animal Procedure Location(s):

Number of Animals:

| | | | | |
|--------|--------|--------|---|-------|
| | | | = | |
| Year 1 | Year 2 | Year 3 | = | TOTAL |

C. SPECIAL CONCERNS OR REQUIREMENTS OF THE PROJECT: Yes No If no, go to Section D.

List any special housing, equipment, animal care (*e.g.*, special caging, water, feed, bedding, temperature, humidity, light cycle, or waste disposal, environmental enhancement, housing social animals singly, *etc.*). Solid-bottom caging, with bedding is recommended for rodents. Housing rodents on wire requires scientific justification. If laboratory personnel are primarily responsible for animal care, provide a copy of the standard operating procedures.

D. TRANSPORTATION: Yes No If no, go to Section E.

Transportation of animals must conform to all institutional guidelines/policies and federal regulations. If animals will be transported on public roads or out of state, describe efforts to comply with USDA regulations. If animals will be transported between facilities, describe the methods and containment to be utilized. If animals will be transported within a facility, include the route and elevator(s) to be utilized. Will live animals be returned to animal facilities?

E. PROJECT OBJECTIVES:

1. Briefly describe in non-technical terms the aim of the project and how the project may benefit human or animal health or advance scientific understanding of biological processes or educational objectives. (What do you expect it to achieve? Why is the project important?)
2. Only If Renewal. Briefly explain why more work needs to be done.

F. RATIONALE FOR ANIMAL USE:

1. Explain your rationale for animal use. (*The rationale should include reasons why non-animal models cannot be used.*)

2. Justify the appropriateness of the species selected.

This is a new model.

This model has previously been used. Provide citation:

The results will be directly applicable to the health or care of this species.

3. Justify the number of animals to be used. (*Describe how the number*

of animals to be used was determined, and why that number is necessary to achieve the goals of this project. If possible, summarize this information in a table giving 1) the number of different experiments, 2) the number of groups per experiment, and 3) the number of animals per group. Whenever possible, justify the number of animals statistically.) Note: All animals involved in the project must be included in the protocol and justified. This includes not only experimental animals, but also donor animals, breeding pairs, pregnant mothers, and offspring that cannot be utilized because of genotype/phenotype, sex, etc.

G. DESCRIPTION OF EXPERIMENTAL DESIGN AND ANIMAL PROCEDURES:

Briefly explain the experimental design and specify all animal procedures. This description should allow the IACUC to understand the experimental course of an animal from its entry into the experiment to the endpoint of the project. Specifically address the following:

- **Animal Identification Methods** (e.g., ear tags, tattoos, collar, leg band, cage card, implant, etc.)
- **Injections or Inoculations** (substances, e.g., infectious agents, adjuvants, etc.; dose, sites, volume, route, and schedules). Yes No
- **Pharmaceutical-grade and Non-pharmaceutical-grade Compounds** Identify any drugs, biologics, or reagents that will be administered to animals. If these agents are not human or veterinary pharmaceutical-grade substances, provide a scientific justification for their use and describe methods that will be used to ensure appropriate preparation and administration. Yes No
- **Blood Withdrawals** (volume, frequency, withdrawal sites, and methodology). Yes No
- **Non-Survival Surgical Procedures** (Provide details of survival surgical procedures in Section I)
 Yes No
- **Radiation** (dosage and schedule) Yes No
- **Methods of Restraint** (e.g., restraint chairs, collars, vests, harnesses, slings, etc.) Yes No
- **Resultant Effects**, if any, the animals are expected to experience (e.g., pain or distress, ascites production, etc.) Yes No
- **Other potential stressors** (e.g., food or water deprivation, noxious stimuli, environmental stress) **and procedures to monitor and minimize distress.** If a project is Category D, indicate any non-pharmaceutical methods to minimize pain and distress. Yes No
- **Other Procedures** (e.g., behavioral studies, tail biopsies, etc.) Yes No
- **Experimental Endpoint Criteria** (e.g., tumor size, percentage body weight gain or loss, inability to eat or drink, behavioral abnormalities, clinical symptomatology, or signs of toxicity) must be specified when the administration of tumor cells, biologics, infectious agents, radiation or toxic chemicals are

expected to cause significant symptomatology or are potentially lethal. List the criteria to be used to determine when euthanasia is to be performed. Death as an endpoint must always be scientifically justified. Yes No

H. RECORDS:

Records should include animal or group identification, type of procedure (blood collection (amount, method), kind of surgery, euthanasia (method), administration of drugs (name, dose, route), *etc.*), initials of personnel, date, and observations relating to animal health and welfare. Describe your records or attach a copy for the IACUC to review:

I. SURVIVAL SURGERY: Yes No If no, go to Section J.

Minor Surgery (cut-downs, needle aspirations, tail biopsies) Specify.

Major Surgery (entering a body cavity or producing substantial impairment of physical or physiologic functions (such as laparotomy, thoracotomy, craniotomy, joint replacement, or limb amputation). Specify.

1. Identify and describe the surgical procedure(s) to be performed. Include preoperative procedures (*e.g.*, fasting, analgesic loading), and anesthetic monitoring (*e.g.*, corneal and pedal reflexes, heart and respiratory rates, *etc.*), and supportive care (ophthalmic ointment, methods to prevent dehydration and hypothermia, *etc.*) during surgery. Include the aseptic methods (*e.g.*, animal and human preparations, sterile instruments and field, *etc.*) to be utilized.
2. Who will perform surgery and what are their qualifications and/or experience?
3. Where will surgery be performed (Building and Room)?
4. Are paralytic agents used during surgery? If yes, please describe how ventilation will be maintained and how pain will be assessed.
5. If survival surgery, describe post-operative care required, including location, frequency of observation, consideration of the use of post-operative analgesics, and identify the responsible individual(s), and duration of survival after surgery. What impairment can be expected from the surgery and describe any post-operative complications that may develop and your plans to handle them
6. Has major survival surgery been performed on any animal prior to being placed on this project?

Yes No

If yes, please explain:

7. Will more than one major survival surgery be performed on an animal while on this project?

Yes No

If yes, please justify:

J. PAIN OR DISTRESS CATEGORY AND CONSIDERATION OF ALTERNATIVES

1. Pain or Distress Categories

| Species (common name) | Category* A, B, C or D | Number of animals used each year | | | 3-year total number of animals |
|---|---------------------------|-------------------------------------|--------|--------|--------------------------------|
| | | Year 1 | Year 2 | Year 3 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Total number of animals (should equal total from Section B): | | | | | |

*** Categories and Examples**

Category A: Animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery, but not yet used for such purposes.

Examples:

- Breeding colonies of any animal species. Breeding colony includes parents and offspring.
- Newly acquired animals that are held in proper caging and handled in accordance with applicable regulations.
- Animals held under proper captive conditions or wild animals that are being observed.

Category B: Animals upon which teaching, research, experiments, or tests will be conducted involving no pain, distress, or use of pain-relieving drugs.

Examples:

- Procedures performed correctly by trained personnel such as the administration of electrolytes/fluids, administration of oral medication, blood collection from a common peripheral vein per standard veterinary practice or catheterization of same, standard radiography, parenteral injections of non-irritating substances, restrictions of food/water intake for less than equivalent to periods of abstinence in nature.
- Euthanasia performed in accordance with the recommendations of the most recent AVMA Guidelines

- on Euthanasia, utilizing procedures that produce rapid unconsciousness and subsequent humane death.
- Manual restraint that is no longer than would be required for a simple exam; less than 12 hours of physical restraint for an adapted animal.

Category C: Animals upon which experiments, teaching, research, surgery, or tests will be conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs will be used.

Examples:

- Surgical procedures conducted by trained personnel in accordance with standard veterinary practice such as biopsies, gonadectomy, exposure of blood vessels, chronic catheter implantation, laparotomy or laparoscopy.
- Blood collection by more invasive routes such as intracardiac or periorbital collection from species without a true orbital sinus such as rats and guinea pigs.
- Administration of drugs, chemicals, toxins, or organisms that would be expected to produce pain or distress but which will be alleviated by analgesics.

Category D: Animals upon which teaching, experiments, research, surgery, or tests will be conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs will adversely affect the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests.

Examples:

- Procedures producing pain or distress unrelieved by analgesics such as toxicity studies, microbial virulence testing, radiation sickness, and research on stress, shock, or pain.
- Surgical and postsurgical sequella from invasion of body cavities, orthopedic procedures, dentistry or other hard or soft tissue damage that produces unrelieved pain or distress.
- Negative conditioning via electric shocks that would cause pain in humans.
- Physical restraint of animals not conditioned to the procedure for the time period used or in excess of 12 hours.

Note Regarding Category D: An explanation of the procedures producing pain or distress in these animals and the justification for not using anesthetic, analgesic or tranquilizing drugs must be provided below. For USDA (Animal Welfare Act) AWA-covered animals, this information is required to be reported to the USDA, will be available from USDA under the Freedom of Information Act.

1. Consideration of Alternatives

The project director must provide a written assurance that the activities do not unnecessarily duplicate research projects/courses and that there are no alternatives (such as less sentient animal species, computer models, tissue culture, *etc.*) to the use of live animals. This narrative should include adequate information for the IACUC to assess that a reasonable and good faith effort was made to determine the availability of alternatives or alternative methods. If the database search or other source identifies a bonafide alternative method (one that could be used to accomplish the goals of the animal use proposal), the written narrative should justify why this alternative was not used.

If any procedures fall into Categories C or D, causing more than momentary or slight pain or distress to the animals, 1) describe your consideration of alternatives and your determination that alternatives are not available and 2) involve the Attending Veterinarian in planning. Yes No

Alternatives include methods that (1) refine existing tests by minimizing animal distress, (2) reduce the number of animals necessary for an experiment, or (3) replace whole-animal use with in vitro or other tests. Note that you must certify in Section R.5. that no valid alternative was identified to any described procedures which may cause more than momentary pain or distress, whether relieved or not. Delineate the methods and sources used in the search. Database references must include databases (2 or more) searched, the date of the search, period covered, and the keywords used.

- Medline Agricola Biosis Embase AWIC CAB Abstracts
- CAB Vet & Medica Index Medicus Federal Research in Progress NML
- Science Citation Index Current Contents National Agricultural Library PubMed
- Periodicals:(names of periodicals or journals read on a regular basis)
- Meetings or conferences: (names and dates of meetings attended)
- Consultation with colleagues (names and credentials of colleagues (*i.e.*, M.D., Ph.D.), dates of consultations and nature of discussions)
- Other. Specify.

K. ANESTHESIA, ANALGESIA, TRANQUILIZATION PROJECT: Yes No If no, go to Section L.

For animals indicated in Section J, Category C, specify the anesthetics, analgesics, sedatives or tranquilizers that are to be used. Include the name of the agent(s), the dosage, route and frequency of administration. Describe tracking and security of controlled drugs (Drug Enforcement Agency requirements).

L. METHOD OF EUTHANASIA OR DISPOSITION OF ANIMALS AT END OF PROJECT

What will happen to the animals at the conclusion of the experiment or demonstration? Indicate the proposed method of euthanasia. If a chemical agent is used, specify the dosage range and route(s) of administration. If the method(s) of euthanasia include those not recommended by the AVMA Guidelines on Euthanasia (e.g., decapitation or cervical dislocation without anesthesia), provide scientific justification as to why such methods must be used. Indicate the method of carcass disposal if not described in Section M. below.

- Anesthetic injection overdose (state drug/dose per body weight/route of administration of drug).
- Exsanguination under anesthesia (state name/dose (per body weight)/route of administration of drug).
- Inhalation of carbon dioxide from a compressed gas cylinder.
- Cervical dislocation.
- Decapitation.
- Other. (Describe.)

Note: In some animals exposed to gas, heartbeat can be maintained after visible respiration has ceased, and the animal might eventually recover. A thoracotomy or other physical method is recommended to assure death of animals after gas exposure. At minimum, check for both respiratory and cardiac arrest prior to discarding the carcass. Describe how death is verified.

M. HAZARDOUS AGENTS IN ANIMALS Yes No If no, go to Section N.

Use of hazardous agents requires the approval of the institutional biosafety specialist. Registration Documents for the use of recombinant DNA or potential human pathogens may be attached at the discretion of the IACUC.

| | YES | NO | List Agents & Registration Document # (if applicable) |
|------------------------------|--------------------------|--------------------------|--|
| Radionuclides | <input type="checkbox"/> | <input type="checkbox"/> | |
| Biological Agents | <input type="checkbox"/> | <input type="checkbox"/> | |
| Hazardous Chemicals or Drugs | <input type="checkbox"/> | <input type="checkbox"/> | |
| Recombinant DNA | <input type="checkbox"/> | <input type="checkbox"/> | |

Project conducted at Animal Biosafety Level:

Describe the practices and procedures required for the safe handling and disposal of contaminated animals and material associated with this project. Also describe methods for removal of radioactive waste and, if applicable, the monitoring of radioactivity.

Additional safety considerations:

N. BIOLOGICAL MATERIAL/ANIMAL PRODUCTS FOR USE IN ANIMALS (e.g., cell lines, antiserum, etc.): Yes No If no, go to Section O.

1. Specify Material
 2. Source Material Sterile or Attenuated Yes No
 3. If derived from rodents, has the material been MAP/RAP/HAP tested?
 Yes (Attach copy of results) No
 4. I certify that the MAP/RAP/HAP tested materials to be used have not been passed through rodent species outside of the animal facility in question and/or the material is derived from the original MAP tested sample. To the best of my knowledge the material remains uncontaminated with rodent pathogens.
- Initials of Project Director.

O. TRANSGENIC AND KNOCKOUT ANIMALS: Yes No If no, go to Section P.

Describe any phenotypic consequences of the genetic manipulations to the animals. Describe any special

care or monitoring that the animals will require.

P. FIELD STUDIES AND WILD CAUGHT ANIMALS: Yes No If no, go to Section Q.

Indicate if Federal and/or state permits are required and whether they have been obtained. Describe how wild animals will be observed, any interactions with the animals, whether the animals will be disturbed or affected, and any special procedures. Include an estimate of the expected mortality for any capturing or sampling technique. In section L, include a method of euthanasia for animals found severely injured or sick.

Q. PERSONNEL:

List the name, status (student, staff, faculty, visitor) and qualifications for each person working with animals. Who will perform the procedures? Please include the number of years of experience working with the species listed in Section B. If the person needs to be trained, please indicate who will do the training.

| Last Name | First Name | Middle Initial | Status | Experience, Procedures and Training |
|-----------|------------|----------------|--------|-------------------------------------|
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All live animal work conducted under teaching/classroom projects must be supervised at all times by University faculty or staff listed above. It is the Project Director's responsibility to assure that all participants are properly trained in animal handling and the procedures conducted as part of this project. Keep a list of all such participants with the protocol.

1. PROJECT DIRECTOR CERTIFICATIONS:

1. I certify that all personnel, including myself in this project will attend the IACUC training course.

2. I certify that I have determined that the research proposed herein is not unnecessarily duplicative of previously reported research.
3. I certify that all individuals working on this project who are at risk are participating in the CCSU's Occupational Health and Safety Program.
4. I certify that the individuals listed in Section Q. are authorized to conduct procedures involving animals under this project, have attended the institutionally required investigator training course, and received training in: the biology, handling, and care of this species; aseptic surgical methods and techniques (if necessary); the concept, availability, and use of research or testing methods that limit the use of animals or minimize distress; the proper use of anesthetics, analgesics, and tranquilizers (if necessary); and procedures for reporting animal welfare concerns.
5. For all Category C and Category D projects (see Section J): I certify that I have reviewed the pertinent scientific literature and the sources and/or databases (2 or more) as noted in Section J.2, and have found no valid alternative to any procedures described herein which may cause more than momentary pain or distress, whether it is relieved or not.
6. I certify that I will obtain approval from the IACUC before initiating any significant changes in this project.
7. I certify that I will notify the IACUC regarding any unexpected project results that impact the animals. Any unanticipated pain or distress, morbidity or mortality will be reported to the attending veterinarian and the IACUC.
8. I certify that copies of the approved protocol will be made available to all laboratory personnel.
9. I certify that I shall on a monthly basis monitor drugs used in my laboratory and shall insure that outdated drugs are promptly discarded.
10. I certify that I shall maintain complete, up-to-date, and accessible records of procedures for the animals used in this project.
11. I will comply with the procedures described in the 8th Edition of the Guide for the Care and Use of Laboratory Animals (Guide), NRC 2011, with PHS Policy, the Animal Welfare Act, and applicable University policies.

Project Director: Signature _____ Date _____

S. CONCURRENCES: PROJECT NUMBER:

For all projects housing animals:

Animal Facility Supervisor certification of resource capability in the indicated facility to support the proposed project.

Facility _____ Name _____ Signature _____ Date _____

COMMENTS:

For all Category C and Category D projects (see Section J):

Attending Veterinarian certification of review and concurrence.

Name _____ Signature _____ Date _____

COMMENTS:

For all projects using hazardous agents (see Section M):

Safety Representative certification of review and concurrence.

Name _____ Signature _____ Date _____

COMMENTS:

T. FINAL APPROVAL:

Certification of review and approval by the CCSU IACUC Chairperson.

IACUC Chairperson _____ **Signature** _____ **Date** _____



Graduate School--Central Connecticut State University, New Britain CT 06050
Approval of Thesis Proposal

TO: Dean, School of Graduate Studies, Henry Barnard 102

FROM:

| | |
|--|--|
| | |
|--|--|

Primary Thesis Advisor

Department

SUBJECT: Approval of Thesis Proposal

Attached you will find one copy of the approved thesis outline prepared by:

| | |
|---------------------|---------------------------|
| Name: | CCSU ID: |
| Street: | Phone No: (H): () |
| City/St/Zip: | (W): () |
| Country: | Date: |
| Major: | Degree Program: |

| |
|--|
| Title of Approved Thesis Outline: |
|--|

If human or animal subjects are involved, your proposal to HSC or IACUC should be attached.

REQUIRED THESIS PROPOSAL SIGNATURES:

| |
|---|
| Primary Thesis Advisor: |
| Date Approved by Primary Thesis Advisor: |
| Committee Member: |
| Committee Member: |
| Committee Member: |

ACCEPTED BY:

| | |
|--|--|
| | |
|--|--|

Dean, School of Graduate Studies

Date Accepted

Appendix G

Approval of Thesis

CENTRAL CONNECTICUT STATE UNIVERSITY
New Britain, Connecticut

TO: Assoc. V. P. for Academic Affairs/
Dean, School of Graduate Studies

FROM: _____
Primary Thesis Advisor Program

SUBJECT: Approval of Thesis

Attached you will find an original and a copy of the approved thesis, five (5) copies of the abstract, and a digitized version prepared by:

Name of Student Degree Program

Title of Approved Thesis: _____

If human or animal subjects were involved, have you included HSC or IACUC Approval in the Appendix of Thesis _____.

Date Approved: _____

Signed: _____
(Primary Thesis Advisor)

Printed: _____
(Primary Thesis Advisor)

(Committee Member)

Accepted by: _____
Assoc. V.P. for Academic Affairs/Dean, School of Graduate Studies

(Date)

Appendix H

Sample Thesis Cover Page

Non-governmental Organization (NGOs) and Tourism:
A Partnership for Poverty Reduction in Developing Countries

Kathleen M. Kennedy

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science in Geography

Department of Geography

Central Connecticut State University

New Britain, Connecticut

March 2008

Thesis Advisor:

Dr. D'Arcy Dornan

Department of Geography

Appendix I

Sample Abstract Cover Page

Multivariate Normal Finite Mixture Clustering – An Approach to Distributive
Computing and Overcoming Local Optimum Solutions Using Stratified Datasets

Eric W. Taylor

An Abstract of a Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Science

in

Data Mining

Department of Mathematical Sciences

Central Connecticut State University

New Britain, Connecticut

April 2005

Thesis Advisor

Dr. Daniel Larose

Department of Mathematical Sciences

Key Words: Multivariate Normal, Finite Mixture Models, Bayes' Theorem

Appendix J

Sample Abstract

The following sample abstract is taken from: *Phoenix, Kathryn (2008).*

The Role of Activation of AMP-dependent Kinase (AMPK) in Endothelial Cell Proliferation

AMP-dependent kinase (AMPK) is a primary energy sensor that controls energy use and production during metabolic cellular stress, such as hypoxia and nutrient deprivation. AMPK activation results in inhibition of anabolic processes and promotion of catabolic processes. AMPK has also been shown to be a target of metformin, a first line therapy for type 2 diabetes. Treatment with metformin has been shown to potentially decrease cell proliferation. Preliminary studies revealed that metformin promoted angiogenesis and vascular stability in an *in vivo* breast tumor model. Importantly, clinical studies have revealed that type 2 diabetic patients treated with metformin experienced improved vascular function when compared to those on other treatments. The major aim of this study was to evaluate the *in vitro* effects of metformin on endothelial cell proliferation as a possible mechanism for increased cell survival and angiogenesis. Human umbilical vein endothelial cells were treated with metformin and evaluated for cell proliferation, viability and kinase activation. Metformin treatment resulted in decreased cell numbers without affecting viability. AMPK activity was increased with metformin treatment. Interestingly, mitogen activated protein kinase (MAPK), a kinase involved in proliferation control, was increased with metformin treatment despite the significant reduction in cell numbers. Additionally, AMPK activation has been shown to promote the expression of a major angiogenic cytokine vascular endothelial growth factor (VEGF) VEGF expression was

increased in response to metformin treatment. Since endothelial cells express VEGF receptors, the promotion of mitogenic signaling possibly resulted from autocrine signaling with increased VEGF expression. Stimulation of this pathway promotes angiogenesis. This study demonstrates that while metformin decreases proliferation of endothelial cells, it is not through the repression of the MAPK pathway. The combination of these events could lead to the improved angiogenesis seen in vivo with metformin treatment and result in improved vascular stability and function patients with diabetes.

Appendix K

Sample Biographical Statement

Mr. João C. Aleixo is Vice President of the Latin America region for World Business Capital, Inc., a Hartford based commercial finance company specializing in providing financing to companies in emerging markets around the world. Prior to completing his Master's Degree in International Studies at Central Connecticut State University, he earned a B.S. in Air Transportation Management at the University of New Haven. Mr. Aleixo is married with two children and makes his home in West Hartford, CT.

Appendix L

Elihu Burritt Library Thesis Reproduction Approval Form

Student Name: _____
Last First Middle Year of Birth*

Document Type: _____ Master's Thesis _____ Dissertation

Document Title: _____

Student Agreement for Posting Thesis to the Web

Please check one of the choices below indicating whether you give your permission to provide access to your thesis or dissertation in our digital library.

[] I give permission / [] I do not give permission to Cataloging & Metadata Services at Elihu Burritt Library, Central Connecticut State University, to post a complete copy of my thesis to the Burritt Library website.

Changes to this Web agreement should be made in writing to: Cataloging & Metadata Services, Elihu Burritt Library, Central Connecticut State University, 1615 Stanley Street, New Britain, CT 06050.

Student Agreement for Access through Interlibrary Loan

Please check one of the choices below indicating whether you give your permission to copy or loan your thesis or dissertation through Interlibrary Loan.

[] I give permission / [] I do not give permission to the Interlibrary Loan Office at Elihu Burritt Library, Central Connecticut State University, to make available a complete copy of my thesis or dissertation, either electronically or in hardcopy, when requested by another institution through interlibrary loan.

Changes to this Interlibrary Loan agreement should be made in writing to: Interlibrary Loan Office, Elihu Burritt Library, Central Connecticut State University, 1615 Stanley Street, New Britain, CT 06050

Student Signature Date

Thesis advisor's signature is required for posting to the digital library and for having the thesis available through Interlibrary Loan.

Thesis Advisor Signature Date

Dean, School of Graduate Studies Date

*Librarians who catalog books must establish a unique form of the name for a given author. Providing us with your year of birth will assist with this endeavor.

Appendix M



Graduate School—Central Connecticut State University, 1615 Stanley Street, New Britain CT 06050
Application for Graduation (Candidates for the Doctoral and Master's Degrees and Sixth Year Certificate)

| | |
|--|-----------------|
| Name: | CCSU ID #: |
| Street: | M/D/Y of Birth: |
| City/St/Zip: | Phone:(H) () |
| Country: | (W) () |
| Email Address: | Advisor: |
| Sex: Male <input type="checkbox"/> Female <input type="checkbox"/> | Date: |

Anticipated Month and Year of Degree Completion: May August December of _____ (year)

●●CCSU awards degrees three (3) times per academic year to graduate students who complete their program requirements: fall (December), spring (May), and summer (August). The annual graduate commencement ceremony is held each May for students who meet degree requirements in fall or spring and have 9 credits or fewer to complete in summer. Commencement information is sent to all eligible students who then inform the University about attendance.●●

Degree Expected: Ed.D. MA MAT MS Sixth Year Major: _____

Enrollment Status: I am not currently enrolled in courses However, I am:
 Taking the comprehensive examination OR Finishing my: Thesis or Special Project.
 I am presently taking the courses below as a full-time or part-time student.

| Course Number | Course Title | Instructor | Semester | Year |
|---------------|--------------|------------|----------|------|
| | | | | |
| | | | | |
| | | | | |

Once I complete the above listed course(s):
 I believe I will have completed all requirements for my degree OR
 In addition to the above listed course(s) I will still need the following to complete my degree and will do so before the end of the semester for which I applied to graduate.

| Program Requirements | Semester expected to be completed |
|----------------------|-----------------------------------|
| | |
| | |

Please print your full name below as you wish it to appear on your diploma:

First Name(s) Middle Name(s) Last Name(s)

Please print the mailing address where you wish to receive your diploma:

Street Address _____
 City/State/Zip _____ Country: _____

●●●This form must be used by graduate students intending to receive a degree from CCSU for the month and year specified above. Not submitting an Application for Graduation in a timely manner may result in failure to receive the appropriate degree. This application must be completed and returned to the Graduate School no later than September 15 (December completion), March 1 (May completion) or March 15 (August completion) of the year in which you expect to graduate. Notify Graduate Studies if your intention to graduate changes to a later semester or year.
 ●●●Post-Baccalaureate Teacher Certification and non-degree students DO NOT use this form to specify program completion. Teacher Certification students contact their advisor to discuss the exit process; Post-Master's and OCP students contact the degree auditor.
 ●●●Since it will be necessary to mail information to you from time to time, please notify the Registrar's Office immediately if you change your address. Diplomas are mailed to all graduates as soon as the University receives them. Your diploma will be sent to you, whether or not you attend the annual commencement ceremony, if your current address is provided to the Office of the Registrar.