Policy and Guidelines for
Meeting Graduate Degree Requirements in
Environmental Engineering

Glen R. Boyd, Ph.D., P.E.
Department of Civil & Environmental Engineering
Tulane University
New Orleans, Louisiana

The purpose of this document is to provide guidelines for graduate students aiming to fulfill graduate degree requirements in environmental engineering with the Department of Civil and Environmental Engineering at Tulane University under the direction of Dr. Glen Boyd. This document will be updated as needed to reflect advances in technology and/or changes in policies as administered by the Department, the School of Engineering, and the Graduate School of Tulane University. If you have any questions, please feel free to contact Dr. Glen Boyd at 504-862-3266 or gboyd@tulane.edu.

1) Departmental Policies and Guidelines – Be sure to abide by all Departmental policies and guidelines for graduate studies as specified in the Graduate Program Policies and Guidelines dated September 1, 1996 (or more recent, if available). This document also is known as the “Green Book” and it contains information regarding graduate student policies (admission, transfer of credits, GRE requirements, English proficiency, financial support), faculty involvement as pertaining to your thesis committee, specific degree requirements, and independent study courses. You can request a copy of this document from the Departmental secretary, Ms. Sandra Haro (x5778 or scralett@tulane.edu).

2) School of Engineering – The Graduate Division of the School of Engineering administers programs leading to the Master of Science in Engineering and Doctor of Science, which are offered in environmental engineering. The Bulletin of the Graduate Division contains information regarding the School’s degree requirements, fees, housing, academic regulations, and more. You can view the Bulletin at the following website address:

http://www.eng.tulane.edu/Graduate/bulletin-2002.htm

Be sure to abide by all policies and requirements contained in the Bulletin. If you have questions, feel free to contact the Graduate Student Coordinator in the School of Engineering, Ms. Candise Guedry (x 2911 or candy@tulane.edu).

3) Tulane Graduate School – The Tulane Graduate School currently does not offer degrees in environmental engineering. Additional information about the Tulane Graduate School is available at the following website address:

http://www.tulane.edu/~gradprog/grad98/dgpage.htm
4) **Developing Your Research Topic** – Some students entering graduate school have already developed clear ideas for their research while others are a little more flexible. A significant amount of time can be lost quickly unless you focus on developing your research objectives as soon as possible. To assist you with this effort, you will be required to develop a scope of work and/or prospectus of your proposed research. At a minimum, the scope of work should include the following sections:

- Introduction (1-2 single spaced pages)
- Hypothesis and Specific Aims (1-2 pages)
- Literature Review (5-10 pages)
  - Background and Applicable Regulations
  - Theoretical Considerations
  - Work Completed by Others
  - Justify Need for Your Proposed Research
- Materials and Methods (4-6 pages)
- Expected Findings and Significance (1-2 pages)
- Schedule (1/2 page and diagram)
- References
- Appendices

As a doctoral candidate, you will be required to abide by guidelines for submitting a prospectus in accordance with the Graduate School. See me for examples of scopes/prospectus prepared previously by other students in the Department. For further guidance in preparing your scope/prospectus, refer to documents and websites cited above.

5) **Research Ownership** – This is a very important concept! As soon as you begin working with our research team, you will want to develop a sense of ownership for your research. Develop a full understanding of your research topic including the driving force (or need) for your research. Develop your own hypothesis and specific aims. Don’t think of your research as an exercise in following directions. Instead, you need to take the initiative to advise me on what you think is the best approach for the successful completion of your research. We will work together to get you started, but ultimately you need to be “driving the bus.”

6) **Professional Courtesy and Punctuality**. We all work very hard and keep very busy schedules. As such, we all want to make the best use of available time as we strive for professional excellence while still allowing time for rest, relaxation and recreation. We therefore need to respect the schedules of others rather than just focusing on the convenience of ourselves. Here are some tips to keep in mind.

- Always be on time for meetings, if not early. As a practicing professional, punctuality will take you a long way.
• Always be prepared for your meeting. Spend about an hour as needed to refresh your thoughts regarding the overall goals of your research, specific tasks that you are currently working on, progress made to date, and plans for the future.
• Try to arrange your schedule to be able to stay for the entire meeting, rather than leaving the meeting early.
• Avoid answering the telephone or shifting your attention to someone who has just entered the room while you are engaged in a meeting. A brief interruption can be terminated with a comment like “Thank you, I’ll take care of that as soon as we finish this meeting.”

5) Selecting Your Committee – Your Committee will serve as a valuable resource as you develop and execute your research. You should select your Committee members carefully. Be sure you are meeting the Departmental requirements as specified in the Green Book for your Committee. You should consider faculty members who have expertise in a field of study closely related to your research. Also you should plan on enrolling in one or more courses offered by each of your Committee members. Your Committee members can provide you with key technical advice. Your advisor can help you in identifying potential Committee members for your research.

6) Communicating with Your Thesis/Dissertation Committee - Once you have completed your draft scope/prospectus and obtained the approval of your major advisor, you are now ready to distribute the document to your Committee. You should schedule appointments with each of your committee members and briefly “walk” through the contents of your document. Ask each Committee member if he/she would like you to schedule a second appointment within about 1 or 2 weeks to answer questions about the proposed research.

Important – For doctoral candidates, you will be required to schedule a date when all of your Committee members can attend to defend your proposed research. For your prospectus defense, you will make a formal presentation (30-40 minutes using PowerPoint) and respond to questions by your Committee members regarding your proposed research.

7) Selecting Your Courses - Your graduate degree is a reflection of your professional interests. You will be expected to acquire a minimum level of knowledge in environmental engineering by meeting core course requirements as specified in the Department’s Green Book. As a graduate student working with me, you will be expected to demonstrate a level of comfort in the following professional skills: developing and producing technical reports (including proposals, scope of work, status reports, technical memorandums, and final reports) and communicating your thoughts and accomplishments (impromptu discussions, review of technical papers, and formal oral presentations). You will acquire these skills by enrolling in two or more of my courses offerings (CVEN 624, 652, 620 and/or 626). Again, you should also enroll in one or two courses offered by each of your
Committee members. Your Committee members likely will be interested in knowing that you applied their course material into your research. In addition to courses offered by the Department, you can consider graduate courses offered by other engineering departments (e.g., chemical engineering, biomedical engineering, and mechanical engineering), the School of Public Health (e.g., Environmental Health Sciences, Biostatistics, etc), and Liberal Arts and Sciences (e.g., EEB, chemistry, etc).

During your first semester, you should begin developing your schedule of your courses to meet the minimum credits for your master or doctoral degree requirements. Typically, a graduate student will enroll in three courses (9 credits) per semester and devote at least ¼ time to research. Your advisor can help you in identifying and recommending courses for your program of study.

8) Funding Your Research – Money talks! It’s an unfortunate reality of life. As a doctoral student, a key component of your education is learning about research funding and methods for securing dollars. As such, you will be expected to identify funding opportunities and prepare and submit proposals to support your research effort. I will assist you in this endeavor, but I am expecting you to identify potential opportunities and lead the effort in developing each proposal in its entirety. Please note that a good proposal can take several weeks or months to prepare. Also note that nearly all funding agencies are very strict about deadlines. If the deadline is 5:00 pm on June 1st, the agency likely will not accept any proposals a minute afterwards. Most proposals are submitted electronically, so you won’t be able to charm the receptionist.

For master’s students, I encourage you to identify opportunities and write proposals for research grants as well. I will help with your proposals as needed.

9) Communicating with Your Advisor and Research Peers – The way we communicate as a research team will be driven by the composition and history of each individual. If most of our students are “new arrivals”, then I try to arrange weekly meetings with our research team. During each weekly meeting, we will open the meeting with a brief summary by each student regarding his/her research accomplishments since our last meeting and plans for the coming week. We will also discuss any administrative issues. Then one student will lead discussion on a technical paper of his/her choice. All students are expected to read the paper thoroughly before the group meeting and participate in the discussion. This is a chance for the discussion leader to learn more about his/her research topic and share your enthusiasm for your research with your peers. Also, these group meetings serve as opportunities for our research team to get to know each other better.

As our research team becomes more experienced and knowledgeable, our group meetings likely will be conducted less often and we will meet more frequently on
a one-on-one basis. We likely will need more one-on-one time to discuss your specific research in greater detail.

When you need to see me, my door usually is “open” and I am happy to stop what I am doing to spend time with my guests. However, please note that my office door may actually be closed – only to cut down on the noise and chatter in the hall outside of my office. Please, don’t be afraid to knock on my door. If you knock, I typically will answer. If you suspect that I am in the office and not answering, it probably means someone else is in my office or I am talking on the telephone. If I cannot meet with you because I am working on something urgent, I am trying to meet a deadline, or preparing for lecture, then I will let you know. Please, don’t get your feelings hurt. We can easily schedule a convenient time for everyone.

The best way to reach me is via email. I am often working at my computer and I will notice an email flag. Provide me with a brief description of the topic and we can try to schedule a meeting either immediately or within a few hours. Alternatively, call me over the telephone and we can try to arrange a meeting.

10) Monitoring Your Research Progress – I expect you to prepare and update a personal schedule and review it with me periodically. Your schedule should provide daily information for the upcoming 3 to 4 months and include key dates such as draft submittals of your prospectus/thesis/dissertation and oral presentations. You should also notify me in advance regarding dates when you are planning vacation or need time for personal leave.

In addition to maintaining a personal schedule, you will host an annual review with your thesis/dissertation Committee. This review meeting typically will be held during the late summer - just before classes begin in the fall. For this review, you will summarize your course work and research progress in the form of a 5 to 8 page technical memorandum that includes the following:

- **Research**
  - Hypothesis and Specific Aims
  - Materials and Methods
  - Work Completed to Date
  - Discussion
  - Next Steps
  - Proposed Schedule
- **Course Work**
  - Courses Completed to Date
  - Remaining Courses and Proposed Schedule
  - Discussion – Relate course work to research objectives

11) Preparing Your Draft Thesis/Dissertation - Don’t kid yourself! The amount of time that is needed to prepare your draft thesis/dissertation is almost always greater than you had anticipated. Here are some tips.
• Become familiar with formatting and adopt a suitable style as soon as possible. If you get into the habit of formatting your text, figures and tables as you prepare your draft documents, then your final document will be easier to prepare. I suggest you adopt the format of the Graduate School [http://www.tulane.edu/~gradprog/thesis_and_dissertation_guidelines.htm](http://www.tulane.edu/~gradprog/thesis_and_dissertation_guidelines.htm)

• Develop a master outline of your thesis/dissertation immediately. Each student will create a unique document, but generally your thesis/dissertation should include the following sections:
  - Abstract – generally 150 words (thesis) or 250 words (dissertation)
  - Introduction
  - Hypothesis and Specific Aims
  - Literature Review
  - Methodology
  - Results and Discussion
  - Conclusion and Recommendations
  - Engineering Significance
  - Appendices

• Develop a table of contents immediately. I will want to see your updated table of contents with every draft so that we can organize your thesis/dissertation in its entirety.

• Modify and update portions from your scope of work and/or prospectus as much as possible including the Introduction, Hypothesis and Specific Aims, Literature Review, and Materials and Methods.

• Use a personal computer and save each chapter of your thesis/dissertation as a separate file. As you develop research data and graphics, your files will grow and your document can become unmanageable due to its size.

• Don’t be afraid to add bullet items and notes to yourself within or at the end of each chapter. For example, as we are developing your research we may come up with recommendations for further study. Enter those notes as bullet items under your list of recommendations.

• Finish your thesis/dissertation and distribute it to your Committee at least 2 weeks before your defense date.

*Note –* For doctoral students, you may consider an alternative dissertation format that includes an Introduction and Conclusion plus a minimum of three peer-review quality technical papers sandwiched in between. Be sure to discuss this optional dissertation format with me.
12) **Preparing for Your Oral Defense** – Your oral thesis/dissertation defense is the moment when you demonstrate your excellence and expertise. Develop a professional talk that will last approximately 30-40 minutes. Use PowerPoint slides and provide enough background information so that Departmental faculty and your peers can readily understand the context and importance of your research. And remember these three words of advice:

Practice! …… Practice! …… Practice!

Schedule a time when your fellow students, family and friends can listen and comment on your practice presentation. Heed their advice so as to help make concepts and technical points clearer. Time yourself to be sure you are within the suggested time frame. Remember, by the time you are ready to defend, you are the expert. You will know more about your topic than anyone else in the room.

13) **Preparing Your Final Thesis or Dissertation** – After you have successfully defended your thesis/dissertation, you likely will receive marked up copies of your draft document from your Committee members. Each Committee member has spent many hours reading your thesis/dissertation and thinking about its contents and overall format. Here are some thoughts as your prepare your final document.

- *Interact one-on-one with your Committee members* and respond to every one of their specific comments. The last thing you want to do is ignore their comments - hoping a Committee member will forget his/her comment because it is too difficult for you to develop a response. As a Committee member or major advisor, I always make photocopies of the draft thesis with my comments. If needed, I will retrieve my photocopy and use it as a reference when reviewing a revised draft submitted by a student. Keep in mind that the goal of your Committee is to help you prepare the best technical document possible, so you should be grateful of the time they spent reviewing your work. Give them the courtesy of attempting to respond to their comments. If it is still unclear, talk to your Committee members about specific issues. They likely will be delighted to clarify unclear points – remember, they agreed to serve on your Committee because they were interested in your research.

- *Spell check and format - very important!* Always run a spell check and update your computer’s dictionary with the correct spelling of words that are not included in a standard dictionary. Use an acceptable format for all text, tables and figures.

- *Consider hiring a professional technical writer and/or word processor* to help you finalize your thesis/dissertation document. Your final document is a reflection of you, your advisor, the Department and the School of Engineering. You will undoubtedly be very proud of your work, but as you near the end, you also may become very “tired” of the material and the
iterations that you have endured. So think about the long-term impact of your thesis/dissertation rather than focusing on the immediate frustrations and anxieties that you may be experiencing.

14) **Professional Binding.** Currently, there is one recommended book binder in the New Orleans metropolitan area. The name and address are provided below.

Walter W. Eckert, Binder  
941 Lafayette  
New Orleans, LA  
504-525-3545

The cost for binding is currently about $45 per book. Also, there are additional costs associated with purchasing high quality paper for your bound copies. At a minimum, you should plan on binding three copies of your thesis or dissertation: one copy for yourself, one copy for the Department’s library, and one copy of Dr. Boyd. Of course, you can make more copies for family and friends (optional).

15) **Publishing Your Thesis/Dissertation** – You will be required to submit your final thesis/dissertation for publishing. Your document will be available worldwide for those interested in your research. Follow the instruction and submit your thesis/dissertation to the following company.

UMI Thesis/Dissertation Publishing  
ProQuest Information and Learning  
P.O. Box 1346  
Ann Arbor, MI 48106-1346 USA  
734-761-4700 or 800-521-0600  
disspub@umi.com or www.umi.com

The cost for publishing your thesis or dissertation is currently about $100. There are additional costs associated with purchasing high quality paper. Your thesis or dissertation will be submitted to UMI through the Graduate School. As such, your thesis or dissertation must be formatted in accordance with the Tulane Graduate School Guidelines. Please adopt the Graduate School Guidelines as early as possible to minimize extra time and frustration associated with reformatting your thesis/dissertation. See Dr. Boyd for more information, as needed.

16) **Distributing Your Finished Thesis/Dissertation** – After completing your final edits, printing your document on high quality paper, binding and making final copies, and securing your Committee’s signatures, then you will be ready to distribute your finished thesis/dissertation. Here is a list of the minimum number of copies that you should plan to prepare for the master’s degree:
1 loose leaf copy (cotton fiber paper) for you
1 loose leaf copy (standard paper) for your major advisor
1 loose leaf copy (cotton fiber paper) for UMI Publishing
3 total loose leaf copies (3 cotton fiber and 1 standard papers)

1 bound copy (cotton fiber paper) for the Graduate Division of the School of Engineering
1 bound copy (cotton fiber paper) for you
2 bound copies (cotton fiber paper) for your major advisor (1 copy for Dr. Boyd’s office and 1 copy for the Departmental library)
4 total bound (cotton fiber paper) copies

Additional copies may be required for the doctoral degree.
At a minimum, you must have six title pages containing the original signatures of your committee members. Two originals each for (a) SOE Graduate Office, (b) Tulane Graduate Office for UMI publishing, and (c) your major advisor.

17) Duration of Study – For master’s students, you should target a maximum of two years to complete 24 hours of course work plus your research and finished thesis. For doctoral students, you should target four years for completing 48 hours of course work plus your research and finished dissertation.

18) Holidays, Personal Leave, and Vacation Time - Keep in mind that most entry level engineers in the United States are allocated 2 weeks of vacation and 2 weeks of personal leave per year. In addition, the University recognizes 14 holidays (http://www.tulane.edu/~hr/new_calendar.html). Vacation time is intended as an opportunity to get away from your work, relax and reinvigorate yourself. Personal leave is intended to be used for time off when sick or if you have personal needs to attend to such as waiting at your apartment for the plumber or picking up a friend at the airport. Holidays are intended for additional time off in commemoration of specific dates throughout the year and your use of those holidays is optional. Let’s talk more about this issue if you are unclear.

Although you are expected to devote at least ¼ of your time to research when enrolled in courses during the fall and spring semesters, most of your research accomplishments will occur during the intersession between the fall and spring semesters and during the summer months. As your major advisor, I expect you to make progress on your research during those periods. However, I think you will quickly realize that I am not heartless. Note – the most important consideration is that you are making satisfactory progress toward your goal of completing your master’s degree in 2 years or your doctoral degree within 4 years. Again, let’s talk more about your specific personal leave and vacation time, as needed.
19) **Photocopy Privileges** – The Department currently maintains a photocopy machine for graduate students’ use on the first floor of Blessey Hall. You are allocating a certain number of copies per year. When you exceed that limit, you will not have your allocation upgraded without some form of payment – usually by charging to a research project. As such, please be judicious in your choice of copies. Also, you should review University policy regarding copyright laws (see Ms. Haro for more information).