The major assignment during the fall semester is the submission of a prospectus to the thesis advisor. The prospectus is designed to help ensure that a student and faculty advisor are explicit about the thesis topic, to promote continued progress during the fall semester, and to increase the likelihood of a final high-quality product. Students are strongly encouraged to work on the thesis throughout the second year. These prospectus guidelines, therefore, are a minimum requirement. Furthermore, given your on-going work, we consider this prospectus more of a “progress report.” A first draft of your prospectus is due to your thesis advisor no later than Wednesday, November 2 with the full prospectus due to your thesis advisor and the YSPH registrar on December 1. The prospectus should be completed using the following format.

Please note that the preferred thesis for students is one that is in the style and length of a publishable peer-reviewed paper.

**PROSPECTUS FORMAT**

**TITLE:** ______________________________________________________________

**THESIS ADVISOR (FIRST READER):**_____________________________________

**SECOND READER:** _____________________________________________

**A. SPECIFIC AIMS & HYPOTHESES**
   Clear and succinct statement of the thesis objectives, including primary study hypothesis

**B. BACKGROUND & RATIONALE**
   Brief overview of existing literature (3-5 paragraphs is sufficient for the prospectus).
   Why is this project important? How is it different from existing research?

**C. METHODS**
   Brief overview of the basic study methodology. If conducting secondary analyses on an existing database, describe the methods of the original study (a-c) along with your plan for analyzing the data (d).
   a. Study Design (case/control, cohort, observational, cross-sectional, laboratory, other)
   b. Study Population (who, how many, what information is available/to be collected for population members)
   c. Sample size/Power Calculations (is sample size sufficient to address the PRIMARY study aim?)
   d. Data Analysis Plan and Software to be Used

**D. COMPETENCIES**
   Select three-five core and department specific competencies that you will master as part of this culminating experience (see attached list). Briefly describe how this thesis will address these competencies.
TIMELINE FOR COMPLETION OF THE THESIS

- **September** - Departmental meetings to review specific thesis requirements and timelines
- **October 31** - Thesis reader forms (signed by both readers) due to YSPH registrar
- **November 2** – First draft of thesis prospectus due to first reader (thesis adviser)
- **December 1** – Final draft of thesis prospectus due to first reader (thesis adviser) and YSPH registrar (ysph.registrar@yale.edu)
- **Mid-March** – First draft of thesis due to first reader (thesis adviser)*. Include a summary of major analyses and tables.
- **April 15** – Submit a final copy of the thesis to your first reader (thesis adviser) and second reader for grading. Please note that some readers may request a copy before April 15 so you should confirm the final submission due date with both readers. Title due: to be used to organize departmental Student Research Day
- **End of April** – Student Research Day (exact date to be determined). All students will present their thesis research. Slides should be submitted to the first reader (thesis adviser) for review and comment. Students should practice the presentation with their thesis adviser in advance.
- **May 1** - Deadline for final grades from both readers and submission of electronic copy. You must make sure that you submit a final copy of your thesis to your readers for review well in advance of the May 1 deadline.

* Note: The timing of the distribution of the thesis to your second reader will vary from student to student, depending on how involved the second reader intends to be. Ideally, both first and second readers will receive a draft to comment on in March, to allow sufficient time to address comments of both first and second reader prior to the May 1 deadline.

FOR MORE INFORMATION ON THESIS GUIDELINES: SEE THE YSPH BULLETIN, Appendix II: http://www.yale.edu/printer/bulletin/htmlfiles/publichealth/index.html
**MPH Core Competencies**

Upon completing the core curriculum of the MPH program, the student will be able to:

1. Demonstrate a knowledge base in the disciplines of biostatistics, chronic and infectious disease epidemiology, health systems, public policy, social and behavioral sciences, and environmental health.
2. Apply basic research skills to specific public health problems in both group and individual settings, including the ability to define problems; construct, articulate and test hypotheses; draw conclusions; and communicate findings to a variety of audiences.
3. Explain the interrelationships among a multitude of factors that can influence a public health problem, including scientific, medical, environmental, cultural, social, behavioral, economic, political, and ethical factors.
4. Review, critique, and evaluate public health reports and research articles.
5. Apply public health concepts, principles, and methodologies obtained through formal coursework to actual problems experienced in the community or work environment.
6. Critically evaluate programs, interventions, and outcomes that relate to public health practice.
7. Apply ethical standards and professional values as they relate to the practice of public health.
8. Demonstrate sensitivity to the social context within which public health professionals practice.

**Biostatistics**

1. Describe concepts of probability, random variation, and commonly used statistical probability distributions.
2. Develop an efficient design for collecting, recording, and storing data collected in the conduct of public health and medical research.
3. Develop sample size and statistical power calculations for basic study designs, including those utilized in clinical trials.
4. Design efficient computer programs for study management and statistical analysis, as well as presentation using SAS and other programming languages.
5. Produce edited data sets suitable for statistical analyses.
6. Apply informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.
7. Perform analyses of stated hypotheses using a variety of analytical tools, including analysis of variance, multiple regression, nonparametric statistics, logistic regression, multivariate analyses, and methods for analyzing rates and failure time data.
8. Interpret results of statistical analyses and use these results to make relevant inferences from data.
9. Produce working tables and statistical summaries describing research in health science.
10. Develop written and oral presentations based on statistical analyses for both public health professionals and educated lay audiences.
Chronic Disease Epidemiology

1. Evaluate the scientific merit and feasibility of epidemiologic study designs.
2. Describe the epidemiology of common chronic diseases with more in-depth knowledge of a specialty area.
3. Synthesize information from a variety of epidemiologic and related studies.
4. Design epidemiologic studies at an intermediate level.
5. Analyze data and draw appropriate inferences from epidemiologic studies on an intermediate level.
6. Demonstrate effectiveness in oral and written communications and presentations to convey and disseminate results to various professional and community audiences.
7. Describe basic pathophysiologic of selected chronic diseases.
8. Identify, interpret, and use routinely collected data on disease occurrence.
9. Review, critique, and evaluate epidemiologic reports and research articles on an intermediate level.
10. Apply basic principles of health promotion and disease prevention to prevent and control chronic diseases.

Environmental Health Sciences

1. Discuss the basic principles of how contaminants are introduced into the air, water, soil, and food and then transported through the environment.
2. Describe the mechanisms of toxicity of biological, chemical, and physical stressors, including absorption, distribution, metabolic transformation, elimination, and genetic susceptibility.
3. Use epidemiological, exposure assessment toxicological, and statistical techniques in assessing the risks associated with environmental hazards in the working, residential, and community environments.
4. Apply the basic principles used to manage risks associated with exposure to environmental hazards.
5. Review, critique and evaluate environmental epidemiology research articles.
6. Evaluate the scientific merit and feasibility of environmental epidemiology study designs.
7. Synthesize information from a variety of environmental health and related studies.
8. Coordinate an environmental epidemiology study, with minimal supervision.
9. Write up and present research findings to professional audiences.

Epidemiology of Microbial Diseases

1. Define the scope and worldwide impact of infectious diseases.
2. Describe the processes that drive transmission and maintenance of infectious agents.
3. Describe the epidemiology of the major infectious diseases worldwide as well as risk exposures and behaviors as these relate to transmission.
4. Describe the host genetic and immunologic factors that affect transmission and disease progression.
5. Describe pathogen-related determinants that contribute to transmission and disease.
6. Explain the interrelationship between the environment and the emergence and maintenance of infectious diseases in populations.

7. Describe and critically evaluate approaches to the prevention and control of infectious diseases and define the key issues to their effective use.

8. Apply principles and concepts obtained through coursework to design and implement studies on the etiology, detection, prevention, or control of infectious diseases in the laboratory and field.

9. Define the ethical challenges in infectious disease research.

**Social and Behavioral Sciences**

1. Identify the effects of social, psychological, and behavioral factors on individual and population health, including prevention, treatment, and management of chronic disease; adjustment to illness; adherence to treatment regimens; and promotion of recovery.

2. Analyze health from multiple levels, including the individual, the social group, and the wider society (e.g., understand a broad ecological model of health).

3. Critically evaluate and interpret the public health scientific literature as presented in professional journals and the popular media, including descriptive, analytic, and intervention studies.

4. Construct research hypotheses and design a study to test these hypotheses.

5. Apply social, psychological, and behavioral theory in the design, implementation, and evaluation of preventive interventions aimed toward: (a) decreasing health-damaging behaviors (e.g., risky sex); (b) increasing health-promoting behaviors (e.g., nutrition, exercise); and (c) increasing psychosocial well-being (e.g., coping with chronic illness).

6. Design an intervention aimed at changing a particular health behavior or preventing a disease.

7. Develop procedures and training materials to implement effective behavioral interventions.

8. Describe how culture, social inequities, and biology influence health across the lifespan.

9. Identify ways to address health inequalities and promote health equity.

10. Describe the appropriate statistical analyses to examine different types of research questions in the social and behavioral sciences.

11. Demonstrate oral and written communication and presentation skills to effectively communicate and disseminate results to various professional and community audiences.

12. Explain the dynamic interaction between policies and the social and behavioral sciences.

13. Apply ethical principles involved in the social and behavioral sciences as they relate to public health.