Wayne State University

FPH 7420: PRINCIPLES OF ENVIRONMENTAL HEALTH – 3 CREDITS HOURS

| Time:       | Winter Semester 2017  
|            | 5:00pm to 7:30pm     |
| Location:  | 3125 Scott Hall       |

Instructors:
Samson Jamesdaniel, MD PhD; sjamesdaniel@wayne.edu
Joseph Caruso, PhD; joseph_caruso@wayne.edu

Course Description and Objectives:
This course is designed for individuals developing careers in the field of public health and will introduce them to a wide range of real world topics including: the interaction of humans with the environment; food protection and technology; the hazards of indoor, institutional, recreational and occupational environments; air quality management; solid and hazardous waste management; water supply quality control; sewage disposal; soil and water pollution; and environmental health emergencies.

On completion of the course, students will have had experience working as an individual environmental health investigator and as a member of a multi-disciplinary team, and will have obtained:

1. A comprehensive understanding of different sources of environmental hazards that impact health and wellbeing with an awareness of how differing local and global environmental conditions might affect short-term or long-term outcomes.
2. An ability to investigate public health population-based issues by identifying relevant contextual material with the identification of risk factors and of specific populations at risk together with an appreciation of appropriate control and/or treatment strategies.
3. An ability to collect, collate and evaluate environmental health relevant information obtained from government and professional-based internet resources and original peer-reviewed publications and reports.
4. Ability to verbally communicate complex issues in a range of both formal and informal professional settings that include leading discussions at a committee meeting, a public health professional workshop, and a community town hall meeting.
5. Competency in written communication using a range of different audience-specific formats, demonstrating appropriate choices of material with dissemination in an organized and thoughtful manner, utilizing a standard citation and referencing method in the preparation of briefing papers and reports.
6. An understanding of the interface and interactions between government health organizations, the community and other stakeholders in the evaluation and risk management and communication of an environmental health issue.
7. A familiarity with the range of expertise, regulations, professional practices, intervention strategies, and approaches used to conduct health risk assessments and to develop management strategies for the prevention and/or control of exposures, giving consideration to community needs and stewardship, equity, social justice, and accountability.
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<td>Scope of Environmental Health</td>
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<td>2) Local &amp; Global Health Issue group assignment</td>
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<td>Briefing Paper Round Table Discussion</td>
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<td>Liquid &amp; Solid Waste management</td>
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<td><strong>Local &amp; Global Health Issues Workshop Session I</strong></td>
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<td>22 Mar</td>
<td>Local &amp; Global Health Issues Team Preparation</td>
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<td>#11</td>
<td><strong>The Urban Environment and Human Health I</strong></td>
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<td>Gene-Environment and Cancer</td>
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<td>Environmental Impact on Life Stages</td>
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<td>#12</td>
<td><strong>The Urban Environment and Human Health II</strong></td>
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<td>5 Apr</td>
<td>Environmental Modulators of the Immune System</td>
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<td>Environmental Modulators of Metabolic Disease</td>
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<td>Case Study Presentations &amp; Discussions</td>
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TextBooks:
Required:

Teaching Methods: This course is taught by a combination of lectures designed to provide students with the necessary knowledge base for them to fully participate in interactive activities and assignments that include role playing and team-based problem-based learning exercises. Heavy emphasis is placed on oral presentations and a series of different types of writing assignments tailored to individual student needs and interests. The relationships between the above learning objectives and the assigned Association of Schools of Public Health (ASPH) competencies are listed in Appendix I.

Policies and Expectations:
• Attendance at all classes and full participation in all team-based activities are required.
• Completion of all assignments by established deadlines is required.
  • Prior notification by e-mail to sjamesdaniel@wayne.edu or joseph_caruso@wayne.edu by 5:00pm of any inability to attend a class due to personal emergencies is required.
• Be prepared to enter into discussions at any time on individual project assignments, course content, and current environmental issues.
• Academic work submitted by students is assumed to be his/her own words (i.e. not cut and pasted directly from various sources including the internet).
• The review of all information relating to cheating, fabrication and plagiarism, located at: http://www.doso.wayne.edu/student-conduct-services.html is required.

Academic Dishonesty, Plagiarism and Cheating (edited statements from the DOSO’s web site): (http://www.doso.wayne.edu/student-conduct-services.html). Academic misbehavior means any activity that tends to compromise the academic integrity of the institution or subvert the education process. All forms of academic misbehavior are prohibited at Wayne State University, as outlined in the Student Code of Conduct. Students who commit or assist in committing dishonest acts are subject to downgrading (to a failing grade for the test, paper, or other course-related activity in question, or for the entire course) and/or additional sanctions as described in the Student Code of Conduct.
  • Cheating: Intentionally using or attempting to use, or intentionally providing or attempting to provide, unauthorized materials, information or assistance in any academic exercise. Examples include: (a) copying from another student’s test paper; (b) allowing another student to copy from a test paper; (c) using unauthorized material such as a "cheat sheet" during an exam.
  • Fabrication: Intentional and unauthorized falsification of any information or citation. Examples include: (a) citation of information not taken from the source indicated; (b) listing sources in a bibliography not used in a research paper.
  • Plagiarism: To take and use another’s words or ideas as one’s own. Examples include: (a) failure to use appropriate referencing when using the words or ideas of other persons; (b) altering the language, paraphrasing, omitting, rearranging, or forming new combinations of words in an attempt to make the thoughts of another appear as your own.
Other forms of academic misbehavior include, but are not limited to: (a) unauthorized use of resources, or any attempt to limit another student’s access to educational resources, or any attempt to alter equipment so as to lead to an incorrect answer for subsequent users; (b) enlisting the assistance of a substitute in the taking of examinations; (c) violating course rules as defined in the course syllabus or other written information provided to the student; (d) selling, buying or stealing all or part of an un-administered test or answers to the test; (e) changing or altering a grade on a test or other academic grade records.

Office of Educational Accessibility Service: Student Disabilities Services (edited statement from the SDS web site): If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located in the Adamany Undergraduate Library. The SDS telephone number is 313-577-1851 or 313-202-4216 (Videophone use only). Once your accommodation is in place, someone can meet with you privately to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Students who are registered with Student Disability Services and who are eligible for alternate testing accommodations such as extended test time and/or a distraction-reduced environment should present the required test permit to the professor at least one week in advance of the exam. Federal law requires that a student registered with SDS is entitled to the reasonable accommodations specified in the student’s accommodation letter, which might include allowing the student to take the final exam on a day different than the rest of the class.

Religious holidays (from the online Academic Calendar): Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

Course Drops and Withdrawals: In the first two weeks of the (full) term, students can drop this class and receive 100% tuition and course fee cancellation. After the end of the second week there is no tuition or fee cancellation. Students who wish to withdraw from the class can initiate a withdrawal request on Pipeline. You will receive a transcript notation of WP (passing), WF (failing), or WN (no graded work) at the time of withdrawal. No withdrawals can be initiated after the end of the tenth week. Students enrolled in the 10th week and beyond will receive a grade. Because withdrawing from courses may have negative academic and financial consequences, students considering course withdrawal should make sure they fully understand all the consequences before taking this step. More information on this can be found at: http://reg.wayne.edu/students/information.php#dropping.

Class recordings: Students need prior written permission from the instructor before recording any portion of this class. If permission is granted, the audio and/or video recording is to be used only for the
student’s personal instructional use. Such recordings are not intended for a wider public audience, such as postings to the internet or sharing with others. Students registered with Student Disabilities Services (SDS) who wish to record class materials must present their specific accommodation to the instructor, who will subsequently comply with the request unless there is some specific reason why he or she cannot, such as discussion of confidential or protected information.

Student Assignments:

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<tr>
<th>Activity</th>
<th>% of Grade</th>
<th>Deadline Dates</th>
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<td>Public Health Hazard Identification Exercise</td>
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<td>Topic Assignments</td>
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<td>Informal Discussion</td>
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<td>8 February</td>
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<td>Briefing Papers submission</td>
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<td>22 February (5 pm)</td>
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<td>Local &amp; Global Environmental Health Issues</td>
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<td>Team Topic Assignment</td>
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<td>Presentation &amp; Discussion</td>
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<td>Individual Report Submission</td>
<td>20</td>
<td>5 April (5 pm)</td>
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<td>Case Study Assignment</td>
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<td>Team Study Assignment</td>
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<td>Team Preparation</td>
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<tr>
<td>Role-playing Town Hall Meeting</td>
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<td>Class Evaluation</td>
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<td>At the end of lectures</td>
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<td>Final Exam</td>
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<td>In Class Exam</td>
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<td>26 April (7.30 pm)</td>
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<td>Take home Subjective &amp; Objective Evaluation</td>
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<td>24 April (11pm)</td>
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**VERY IMPORTANT NOTE:** Please submit ALL assignments electronically via Blackboard using a file name that includes your full or part of your name (e.g., yourname_paper.doc; yourname_report.doc).

**SUMMARY OF KNOWLEDGE BASE:**

**The Scope of Environmental Health:** Students are first introduced to the environmental health objectives of the CDC “Healthy People 2020”, that form the basis of the lectures, different assignments and interactive exercises employed in this course (Appendix III). The global environmental impact of population growth, urbanization and climate change on the future sustainability in the supplies of energy and safe food and water are discussed. The characterizations and routes of exposure of different types of biological, chemical and physical exposures including possible effects on the psychosocial wellbeing of individuals and communities are presented. The associated impact of human activities on water and air pollution, ecosystems, and the enhanced generation of solid and liquid wastes are introduced.

**Biological and Chemical Hazards:** A lecture is presented to support the first assignment entitled: “Public Health Hazard Identification Project” (see below):
1. **Pathogens in the News:** Categories of infectious agents and their associated diseases are introduced with an emphasis on the public health aspects of disease transmission.

2. **Agents of Biological and Chemical Terrorism:** In preparation for later discussions and assignments dealing with incidents due to chemical exposures and natural disasters, students are introduced to the identification and planning of how to deal with signs of the release of biological and chemical agents identified with potential acts of terrorism. The history of chemical and bacterial warfare provides a basis for discussing the potential use of such agents in acts of terrorism that are considered by the CDC to be major threats. The symptoms, signs and pathogenesis are discussed as a basis for understanding early recognition, containment and overall incident preparedness.

3. **Child Health and Safety Issues:** The infections and chemical exposures specifically affecting children are discussed that include, lead exposure, environmental causes and triggers of childhood asthmatic responses, communicable diseases, and hazards specific to the home and school.

**Team Building and Community Partnerships:** Lectures on these topics describe how complex environmental health issues are addressed through collaboration between multiple disciplines, and how this is mediated within a framework of team science skillsets. In addition, the lectures discuss how community-based participatory research impacts environmental health and justice, and provides benefits to i) the community, ii) researchers, and iii) community organizations.

**Air Quality:** Natural, mobile and stationary sources of ambient air pollution are introduced together with discussions on how certain atmospheric conditions can result in incidents of adverse health effects. The components and resulting biological responses to gases, vapors and particulates found in ambient and indoor air together with an illustrated description of the defense mechanisms of the lung and how failure results in disease are presented. Students are also introduced to some of the key approaches used to manage the public health risks associated with pollution derived from energy production.

**Water Quality:** The sources and future adequacy of water supplies are presented followed by detailed discussion on the use and importance of clean water. The major sources of biological and chemical contamination are presented with a discussion on municipal drinking water quality criteria. The prevention of water-related health problems with an introduction to the global problems of sanitation is presented.

**Food Safety:** Students are first introduced to the basics of nutrition and health followed by more detailed presentation on food borne diseases, poisonings, and the potential hazards of chemical contaminants and additives. A discussion on the controversies relating to organically grown fruit and vegetables and genetically modified crops is initiated. Food quality control and investigations of incidents of food contamination together with health risk management and reduction strategies are discussed.

**Environmental Data, Risk Assessment, and Policy:** This class discusses the types of data that are collected in environmental health studies, ethical considerations for data collection and handling, and safeguards including Internal Review Board policies. The elements of environmental health risk assessment are introduced that include hazard identification, dose-response relationships, risk characterization and management including risk communication and prevention strategies. A detailed discussion on the role of different epidemiology-based approaches and their limitations are presented.
The role of toxicology is also detailed together with a discussion on how the overall principles of risk management are applied. The overall principles environmental justice, dimension and uncertainties associated with the development of environmental policies and regulations are discussed. The major US environmental federal acts are presented followed by the steps used in regulation development. Based on the Clean Air Act, the processes by which its impact on health benefits and costs are determined, are illustrated. The determinants of standard setting are also introduced.

**Pollution Prevention and Remediation:** This lecture describes pollutants in soil, water and air common to the urban environment as well as engineering techniques employed to mitigate exposure risk. Topics discussed include soil remediation, water and wastewater treatment, and air pollution control technologies. In addition, brownfield redevelopment, urban planning, as well as the role financing can play in improving public wellbeing are discussed.

**Incident Management:** In preparation for some of the interactive assignments, students are introduced to the overall principles of incident management. The causes of natural disasters and technology related incidents are presented with a discussion on human psychosocial responses and other adverse health outcomes. The initial, recovery and mitigation phases of an incident are presented and based on a case study, the management and associated risk communication aspects of a community water contamination outbreak are discussed in detail. Similarly, a case study of a chemical spill in a rural community is used to illustrate the short and long health, socioeconomic and ecological effects on an affected community.

**Waste Management:** Sources of non-hazardous waste, disposal and recycling together with methods for sanitary treatment of sewage and farm wastes are presented. The handling of hazardous waste and its disposal including special problems associated with chemical, construction, radioactivity, and medical wastes are discussed together with an introduction to the policies and procedures associated with solid and liquid hazardous waste management.

**Urban Environment and Human Health:** Lectures in this series emphasize the effects of the urban environment on human health from a disease perspective – i.e., these sessions will address the impact of the urban environment on diseases of the immune system (e.g., asthma), various cancers, metabolic disorders (e.g., obesity, diabetes, cardiovascular disease, and liver disease), and different life stages. The significance of differences in genetic factors resulting in differential response to environmental exposures will be discussed. Specifically, the interaction between genomics, environment and subsequent variability in disease manifestation will be explored with some classic examples.

*Note:* Although these lectures include many examples of hazardous exposures and their associated risk factors and health effects, the more specific coverage of adverse health outcomes relating to pesticide, organic solvent, heavy metal, ionizing and non-ionizing radiation, and chemical carcinogen exposures are introduced within the following interactive activities and assignments of the course.

**ACTIVITIES AND ASSIGNMENTS:**

The activities and assignments associated with this course have been designed around the above listed set of learning objectives that in turn are based upon a set of overlapping clusters of course competencies established by the Association of Schools of Public health (ASPH) and numbered and listed in Appendix I as those directly associated with environmental health (B1-7) and those interdisciplinary cross-cutting
Public Health Hazard Identification Exercise: The major objectives of this first exercise are for students to demonstrate their ability to access and evaluate internet and library-based resources (Appendix II) in their exploration of biological, chemical and physical exposures that might affect individuals during their normal activities of daily life and as a result of catastrophic events (B1). As part of this exercise, students are required to identify risk factors and populations at risk (B2) as well as investigate possible control and other intervention strategies (B5). These competencies will be assessed by the submission of a briefing paper (F7). Students are expected to use their briefing papers as a basis for leading and participating in a simulated group meeting with a Public Health Department Director on subjects assigned (F7, H4, I7). Each student is to be assigned an exposure from lists of: a) pathogens in the news; b) biological and chemical agents of terrorism; and c) child health and safety issues and required to obtain scholarly-based information from library and well recognized computer-based resources in preparation of a briefing paper for a round table discussion on the 8th February with final submission of reports on the 22nd February addressing a range of specific areas and/or questions that include:

1. The biological, chemical, and physical nature of the hazard or threat.
2. Relationships between the level and types of exposure, biological responses, signs, symptoms, time course of events, and subsequent appearance of long term adverse health outcomes.
3. Characterization of the health risks in terms of confounders, vectors and specific populations at risk.
4. Strategies for prevention, treatment and/or containment using any available examples.

Briefing papers should be designed for submission and use in a meeting with a new Director of Public Health as a basis for the Department developing material for establishing intervention strategies and for the communication of health risks to diverse audiences that could include other health professionals, the business community, politicians, journalists, and the public in general. It is suggested that each paper should begin with a short paragraph introducing the problem(s) address suggested questions, and include a set and/or list of conclusions/concerns/outcomes and/or recommendations (a set of templates will be made available). Organization of the information using headings based on the questions provided within the lecture notes and short introductory sentence(s)/paragraphs for each section with bulleted statements, represents the best way to document the information for ready retrieval at a meeting where you might be expected to answer specific questions. Each paper must not exceed 2-3 pages of single-spaced text (12pt Times Roman or 11pt Arial recommended) – additional space may be used for the list of citations, charts and figures, as well as any additional appendix material, etc: Inclusion of appendix material, referenced from within the main text, is strongly encouraged. All cited material must be correctly cited and referenced (see below) (Appendix II).

Note: These first assignments will be identified as a Safe Assignment (See Blackboard Guide for Students and Course Resources Folder for additional information). By submitting each briefing paper as a draft via the SafeAssign™ program, you will be able to obtain an initial report demonstrating unoriginal content and/or incorrect attribution of referenced content prior to final separate submissions to the instructor for marking. However, on final submission of your reports, they will be available to the instructor together with a Safe Assign report. By entering your paper to SafeAssign™ as a draft, it will not be entered into the institutional database. This program is being
used as an instructional tool to help students avoid plagiarism. Warning: its database is limited and will not necessarily cover many of the reference materials that you might find through, for example, a PubMed® search. It will be made available in subsequent writing assignments.

Local & Global Health Issues Project: Students are assigned to teams based on their respective backgrounds and interests. The major objective of this exercise is for students to work in teams to prepare to participate in a workshop to discuss the approaches used in assessing, preventing and managing a wide range of environmental, occupational, and community health issues arising from climate change, natural disasters, and industrial-based activities and incidents (B5), taking into consideration risk management and communication approaches needed to address social justice and equity (B7). In addition to improving oral communication skills as participants of the workshop, this assignment also requires students to demonstrate their competency in describing and articulating the human, ecological and safety effects of major environmental hazards (B1, I7, J6) using sentinel events and historical examples (J1). Students will also be required to submit an individual report based on the Local or Global Health Issue assigned to their group. Refer to more details in the next section. Topical subjects are chosen each year and could include any of these:

- Environmental & Community Health Impact of an Oil Spill;
- Environmental & Community Health Impact of a Nuclear Power Station Incident;
- West African and Global Impact of the Ebola Outbreak;
- Impact of the Haitian Earthquake on Health and Economic Sustainability;
- Pesticide Use in the Developing World;
- Impact of Climate Change on Health and the Sustainability of Food and Water Supplies;
- Importance of Maintaining Wetlands and their Biodiversity;
- Impact of Acid Rain and Deforestation on Health and Economic Sustainability.

Students will need to establish a team-interactive network in preparation to meet on 22nd February and 1st March to prepare to lead a discussion session on assigned local and /or global health-related issues at a workshop designed for public health professionals on the 8th / 22nd March.

Local & Global Health Issues Individual Paper: The objective of this assignment is for students to write a scholastic report on the global health issues chosen as part of the Local & Global Health Issues Symposium. The paper should encompass the entire subject matter discussed by the group, including aspects covered by other teammates. The individual paper provides students with the opportunity to examine a public health related based on series of questions and/or issues to be addressed during and based on a background summary of historical risk have previously explored the characteristics and extent of the adverse health outcomes (B4). Depending on the focus of the addressed, students address human, ecological and possible environmental and /or occupational exposures (B1), general toxicity (B6), and risk factors (B2). Each student written report (F7) provides the symposium assessments that considers inclusion of any relevant regulatory programs of prevention, surveillance and control (B3), and propose ongoing and/or potential strategies to reduce and manage the risks to human health, including potential programs for the improvement in public health communication (B5, B7). The report should not exceed 5 pages (double-spaced using a standardized font (12pt Times Roman or 11pt Arial recommended) of text that can have additional space given to tables and figures, etc. An
additional **title page** should contain the title and a **summary abstract** of no more than 250 words)(single spaced) and 3-5 **key words** not in the title. Additional pages will also need to be included for the list of cited references/sources and any appendix material. New paragraphs should be indicated by indentation. Depending on chosen format, quotations of greater than one line (note: for APA 40 words with no quotation marks) should be indented and single spaced. Margins should be 1 inch (top, bottom, left and right) and pages numbered using Arabic numerals. The individual paper should include an introduction, background, discussion and conclusions to provide a detailed report on the local & global health issue discussed by the team.

**Reference Citations:** You may adopt the format used by either the American Medical Association (AMA) or the American Psychological Association (APA) (**Appendix II**). Sources of all figures and tables must be referenced. Internet resources can be used if original sources are not available, but they must be correctly and fully referenced with the access date indicated as appropriate depending on adopted format. **Note:** listing EPA.gov is not acceptable. Wikipedia and many E-book-based reviews are good starting points for enquiry but are not necessarily subject to peer review and in many cases are not accurately citing original work. Therefore, Wikipedia as an encyclopedia and some E-books as review documents should **not** be utilized as citable references in these course assignments.

**Case Study Team-Based Exercises:** These exercises are designed to provide students with an opportunity to apply all the major environmental health course competencies in a multi-disciplinary team-based problem solving exercise (B1-7). Each team is provided with background information on an individual or a community that is experiencing or might experience signs and symptoms resulting from either an occupational or environment exposure. Each team has to work through a set of guidelines to present themselves as a representative team of public health professionals from the local health department at a town hall meeting within the affected community, convened to present the team’s findings and discuss plans of action to address the problem(s) (F7, H4, I7, J1, J6).

**Class Evaluation:** The course will introduce many guest speakers who bring with them an immense amount of knowledge and skills in their particular field of expertise. Students will be provided with questions on important topics covered by the lectures. Students must answer the questions and submit for evaluation. There will be a total of 5 class evaluations in this course.

**Final Examination:** There will be an in-class assessment and take-home evaluation of knowledge gained during this course. An in-class assessment would involve a series of multiple-choice and short answer questions based on the lectures and other activities conducted in class. For the “take-home” component, students will reflect on their own attainment of environmental health competencies in preparing a cover letter to an application for a position as a public health professional, for example in a State Department of Community Health (B1-7, J1, J6). The take home evaluation will need to be submitted for grading by the **24th April**.

**The Marking of Assignments:** The following table lists the combinations of criteria used for marking each of the above assignments. Since these criteria not only represent the course learning objectives but are also linked to the MPH and GC-PHP Program competencies, it makes it possible to derive data of how well students individually and collectively attain course and degree program competencies and learning objectives. The marking of each of the activities and assignments is based on a rubric that averages separate percentage marks assigned for each of the criteria in the combinations listed in the following table.
<table>
<thead>
<tr>
<th>LO No.</th>
<th>Assignments</th>
<th>Briefing Paper</th>
<th>LGGH Workshop</th>
<th>LGGH Individual</th>
<th>Case Study Evaluation</th>
<th>Class Evaluation</th>
<th>Final Exam In-Class</th>
<th>Final Exam Take-Home Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A comprehensive understanding and of different sources of environmental hazards that impact health and wellbeing with an awareness of how differing local and global environmental conditions might impact short term or long-term outcomes (PC id).</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>An ability to investigate public health population-based issues by identifying relevant contextual material with the identification of risk factors and of specific populations at risk with an appreciation of appropriate control and/or treatment strategies etc. (PC id)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>An ability to collect, collate and evaluate environmental health relevant information obtained from government and professional-based internet resources and original peer-reviewed publications and reports (PC ii).</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Ability to verbally communicate complex issues in a range of both formal and informal professional settings that include leading discussions at a committee meeting, a public health professional workshop, and a community town hall meeting as well as providing summary presentation of a scientific paper at a symposium (PC iii).</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>5</td>
<td>Competency in written communication using a range of different audience specific formats, demonstrating appropriate choices of material with dissemination in an organized and thoughtful manner, utilizing a standard citation and referencing methods in the preparation of briefing papers, a meeting poster and a detailed investigative report (PC iii).</td>
<td>X</td>
<td></td>
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<tr>
<td>6</td>
<td>An understanding of the interface and interactions between government health organizations, the community and other stakeholders in the evaluation and risk management and communication of an environmental health issue (PC v).</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>A familiarity with the range of expertise, regulations, professional practices and intervention strategies, and approaches used to conduct health risk assessments and to develop management strategies for the prevention and/or control of exposures, giving consideration to community needs and stewardship, equity, social justice, and accountability (PC vi).</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
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</tbody>
</table>

**Maximum Marks**: 20 10 20 15 10 20 5

**MPH Program Core Objectives/Competencies (PC):**

i. Apply evidence-based knowledge from a) behavioral and social sciences, b) biostatistics, c) epidemiology, d) environmental health, and e) health care organization to understanding and improving the health of the public.

ii. Use appropriate research and analytical strategies to address public health issues.
iii. Communicate public health principles and findings to professional and community audiences using a variety of media and methodologies.

iv. Collaborate sensitively, professionally, and ethically with individuals from diverse cultural, ethnic, and socioeconomic backgrounds. Integrated into all aspects of the course but not separately assessed (see FPH 7320)

v. Recognize dynamic interactions between human and social systems and how they affect relationships among individuals, groups, organizations, communities, and other structures.

vi. Understand the ethical choices, values, and professional practices implicit in public health decisions, giving consideration to the effect of choices on community stewardship, equity, social justice, and accountability.

**Procedure:** A percentage mark is generated for each of the assignment associated criteria, averaged and then divided by 100 and multiplied by the maximum available marks for that particular assignment using the grading scale that corresponds to the final grade assignments indicated below. Although the mark for each assignment is made up of 3-5 separate components, the following provides some overall guideline for interpreting assignment scores for a written assignment.

- **<60%** is an inadequate paper, where the material presented does not cover the subject matter in sufficient detail, lacks organization and provides no in-depth synthesis.
- **61-70%** is an adequate paper that covers most but not all major aspects of the subject matter; but also demonstrates a minimal understanding, due to a relative lack of organization, synthesis, and discussion.
- **71-80%** is an adequate paper, that although major aspects of the subject matter are covered in an organized fashion, some lack of in-depth understanding is demonstrated by only a minimum of synthesis and discussion.
- **81-90%** is an adequate paper with all major aspects presented in an organized fashion, that by a well structured synthesis and discussion, demonstrates adequate but not an extensive depth of knowledge and understanding of the subject matter;
- **91-100%** is an adequate paper with not only all major aspects covered, but by well-structured synthesis, discussion and introduction of additional material, demonstrates a far reaching knowledge and understanding of the subject matter and its relationship to other issues.

**Final Grade Assignments:**

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50%</td>
<td>C Grade</td>
</tr>
<tr>
<td>51-60 %</td>
<td>B Minus Grade</td>
</tr>
<tr>
<td>61-70%</td>
<td>B Grade</td>
</tr>
<tr>
<td>71-80 %</td>
<td>B Plus Grade</td>
</tr>
<tr>
<td>81-90%</td>
<td>A Minus Grade</td>
</tr>
<tr>
<td>91-100%</td>
<td>A Grade</td>
</tr>
</tbody>
</table>

**Additional Notes on Marking:**

a) Failure to meet a submission deadline without prior agreement might result in mark deductions of up to 5% per day to a maximum of 25%.
b) There will be no opportunity for additional work for extra credit.
c) For the purposes of learning and if considered necessary, all submitted written material is subject to potential evaluation for cheating, plagiarism, inappropriate paraphrasing etc: utilizing Safe-Assign® or Turn it In® with its more extensive database of published materials.
APPENDIX I – Course Competencies:

Association of Schools of Public Health (ASPH) Competencies Addressed by this Course Include:

**Environmental Health Sciences:**
B1. Describe the direct and indirect human, ecological and safety effects of major environmental and occupational agents.
B2. Describe genetic, physiologic and psychosocial factors that affect susceptibility to adverse health outcomes following exposure to environmental hazards.
B3. Describe federal and state regulatory programs, guidelines and authorities that control environmental health issues.
B5. Specify approaches for assessing, preventing and controlling environmental hazards that pose risks to human health and safety.
B6. Explain the general mechanisms of toxicity in eliciting a toxic response to various environmental exposures.
B7. Discuss various risk management and risk communication approaches in relation to issues of environmental justice and equity.

**Communications and Informatics**
F7. Demonstrate effective written and oral skills for communicating with different audiences in the context of professional public health activities.
F8. Use information technology to access, evaluate, and interpret public health data.

**Leadership**
H4. Engage in dialogue and learning from others to advance public health goals.

**Public Health Biology**
I7. Articulate how biological, chemical and physical agents affect human health.

**Professionalism**
J1. Discuss sentinel events in the history and development of the public health profession and their relevance for practice in the field.

APPENDIX II: Resources for FPH 7420 (Winter 2016):

It is strongly recommended that the following websites be explored as a basis for individual student to begin developing resources for conducting the assignments for this course. We hope that students will share additional resources that they locate with the class as we proceed.

WSU LIBRARIES:
Logins to WSU library-based databases (Pubmed@Wayne etc.) are conducted with your AccessID number and password.

**WSU Library System Instruction** from: [http://www.lib.wayne.edu/blog/instruction/](http://www.lib.wayne.edu/blog/instruction/)

Reference Tools from: [http://www.lib.wayne.edu](http://www.lib.wayne.edu) include:
- Dictionaries / Thesaurus

Library Guides [http://guides.lib.wayne.edu/index.php](http://guides.lib.wayne.edu/index.php) include for example:
- Citation Style Guides
  - APA [http://guides.lib.wayne.edu/apastyle](http://guides.lib.wayne.edu/apastyle)
  - MLA [http://guides.lib.wayne.edu/mlastyle](http://guides.lib.wayne.edu/mlastyle)

**Medicine Shiffman – Medical Reference Tools and Services from:**
[http://guides.lib.wayne.edu/content.php?pid=82991&hs=a](http://guides.lib.wayne.edu/content.php?pid=82991&hs=a)
that provides links to citation guides and statistics as well as Quick Links to:
- Pubmed@Wayne
- Web of Science (ISI) &
Other research resources

What is plagiarism? http://www.lib.wayne.edu/blog/instruction/2010/10/26/what-is-plagiarism/ and:
Avoiding plagiarism, self-plagiarism, and other questionable writing practices: A guide to ethical writing by Miguel Roig, Ph.D. downloadable at:
http://ori.hhs.gov/education/products/roig_st_johns/index.html
Shiffman Medical Library: http://www.lib.wayne.edu/shiffman/

EVALUATION OF RESOURCES:
Scholarly Versus Popular Articles?
http://www.lib.wayne.edu/blog/instruction/2010/10/26/introduction-scholarly-vs-popular-articles/
Website Evaluation:
and from the University of North Carolina:
http://www.lib.unc.edu/instruct/evaluate/?page=websites

RESEARCHING THE LITERATURE:
Pubmed@wayne: from http://www.lib.wayne.edu/shiffman/
Introduction: Searching PubMed@Wayne
Web of Science (ISI) only accessible via the WSU Library System:
From the Shiffman Library webpage http://www.lib.wayne.edu/shiffman/ click on “Article Databases” and search for “Web of Science.”
Introduction: Searching Web of Science

CITATION GUIDES:
American Medical Association (AMA):
http://www.usciences.edu/library/help/citation-ama.asp
http://libguides.stkate.edu/citationguides
American Psychological Society (APA) mainly used in the social sciences:
http://guides.lib.wayne.edu/apastyle
National Library of Medicine (NLM) mainly used in the medical sciences:
Modern Language Association (MLA) mainly used in the liberal arts and humanities:
http://guides.lib.wayne.edu/mlastyle

Purdue University OWL provides some very useful guides that students should explore that include
General Writing Resources
Research and Citation
• Conducting Research (including evaluating resources)
• Using Research (including how to quote, use appropriate paraphrasing and avoid plagiarism).
• Introductions to some citation guides are also provided.

ADDITIONAL DATABASES AND WEBSITES:
Students will need to familiarize themselves with the following databases and websites as starting points for their individual- and team-based research assignments:
• PubMed to be accessed via Pubmed@Wayne see above:
• TOXNET: http://toxnet.nlm.nih.gov/ that includes:
CDC Healthy People 2020 Objectives of environmental health (EH) topics from which lectures, assignments and class activities are based:

**Healthy People 2020 Topic Areas in Environmental Health**

**Outdoor Air Quality**
EH-1: Reduce the number of days the Air Quality Index (AQI) exceeds 100.
EH-2: Increase use of alternative modes of transportation for work.
EH-3: Reduce air toxic emissions to decrease the risk of adverse health effects caused by airborne toxics.

**Water Quality**
EH-4: Increase the proportion of persons served by community water systems who receive a supply of drinking water that meets the regulations of the Safe Drinking Water Act.
EH-5: Reduce waterborne disease outbreaks arising from water intended for drinking among persons served by community water systems.
EH-6: Reduce per capita domestic water withdrawals with respect to use and conservation.
EH-7: Increase the proportion of days that beaches are open and safe for swimming.

**Toxics and Waste**
EH-8: Reduce blood lead levels in children.
EH-9: Minimize the risks to human health and the environment posed by hazardous sites.
EH-10: Reduce pesticide exposures that result in visits to a health care facility.
EH-11: Reduce the amount of toxic pollutants released into the environment.
EH-12: Increase recycling of municipal solid waste.
Healthy Homes and Healthy Communities
EH-13: Reduce indoor allergen levels.
EH-14: Increase the percentage of homes with an operating radon mitigation system for persons living in homes at risk for radon exposure.
EH-15: Increase the percentage of new single family homes (SFH) constructed with radon-reducing features, especially in high-radon-potential areas.
EH-16: Increase the proportion of the Nation’s elementary, middle, and high schools that have official school policies and engage in practices that promote a healthy and safe physical school environment:
EH-17: (Developmental) Increase the proportion of persons living in pre-1978 housing that has been tested for the presence of lead-based paint or related hazards.
EH-18: Reduce the number of U.S. homes that are found to have lead-based paint or related hazards.
EH-19: Reduce the proportion of occupied housing units that have moderate or severe physical problems.

Infrastructure and Surveillance
EH-20: Reduce exposure to selected environmental chemicals in the population, as measured by blood and urine concentrations of the substances or their metabolites.

Metals, Organochlorine pesticide, Non-persistent insecticides, Persistent industrial chemicals: Polychlorinated biphenyls (PCBs), Persistent industrial chemicals: Dioxins, Potential endocrine disruptors, Flame retardants: polybrominated diphenyl ethers (BDEs)

EH-22: Increase the number of States, Territories, Tribes, and the District of Columbia that monitor diseases or conditions that can be caused by exposure to environmental hazards.
EH-23: Reduce the number of new schools sited within 500 feet of an interstate or Federal or State highway.

Global Environmental Health
EH-24: Reduce the global burden of disease due to poor water quality, sanitation, and insufficient hygiene.