

Syllabus

| Feature | Considerations |
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| Instructor & TA Information (for each Faculty and TA) | <ul style="list-style-type: none"> • Mary Ann Smith, PhD |
| | <ul style="list-style-type: none"> • Mary.A.Smith@uth.tmc.edu |
| | <ul style="list-style-type: none"> • Office phone: (713) 500-9236 • Fax: (713) 500-9068 • Webex® link: https://uthealth.webex.com/meet/mary.a.smith |
| | <ul style="list-style-type: none"> • RAS-W214 |
| | <ul style="list-style-type: none"> • Office hours are by appointment or drop-in any time between 8:30 AM and 5:00 PM. Non-Houston based students may schedule Webex® appointments by connecting to https://uthealth.webex.com/meet/mary.a.smith |
| Course Description | <ul style="list-style-type: none"> • PH2177 – Toxicology II: Toxic Agents / GS13 1083 - dual-listed with GSBS |
| | <ul style="list-style-type: none"> • Spring 2021 |
| | <ul style="list-style-type: none"> • 3 Credit Hours |
| | <ul style="list-style-type: none"> • ITV or Webex® |
| | <ul style="list-style-type: none"> • This course uses in-class discussions, based on guided readings, on current topics in toxicology. The discussions include the historical context for our understanding of toxicant-induced adverse health effects. Class activities will be based on discussions of books designed for the lay public and the scientific literature on which these books are based. Principle mechanisms of toxicity as they relate to the understanding of environmentally induced disease form the framework for the course. In-depth reviews of various classes of environmental contaminants and their adverse health effects will be presented. |
| <ul style="list-style-type: none"> • Elective course for those students wishing to obtain additional expertise in toxicology and its applications to environmental health problems. • PH2177 is also a Track-specific course for the PhD in Environmental Sciences – Disease Prevention Track | |
| Textbook and Materials | <ul style="list-style-type: none"> • Required readings come from the mass-market books listed below, as well as from primary literature sources. |

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| | <ul style="list-style-type: none"> • <i>Silent Spring</i>. Rachel Carson, 1962; Mariner Books edition, 2002. • <i>Our Stolen Future: Are we threatening our fertility, intelligence, and survival? A scientific detective story</i>. Theo Colburn, Plume Press, 1997. • <i>Sicker, Fatter, Poorer: The urgent threat of hormone-disrupting chemicals to our health & future...and what we can do about it</i>. Leonardo Trasande, Houghton Mifflin Harcourt, 2019. • <i>Count Down: How our modern world is threatening sperm counts, altering male & female reproductive development, and imperiling the future of the human race</i>. Shanna Swan, Scribner, 2021. • Books may be purchased online from Amazon (Hardcover or Kindle® versions) or from any other online bookseller. |
| Course Expectations | <ul style="list-style-type: none"> • Students are expected to come to class having read the assigned reading for each day's discussion and be prepared to lead discussions on questions when asked. |
| Course Learning Objectives | <ul style="list-style-type: none"> • This course is a continuation of Toxicology I: Principles of Toxicology. The course is based on guided readings of three books that have xenobiotic induced hormonal (endocrine) disruption as an underlying theme and in-depth review of endocrine-disruption chemicals. The books will provide the backdrop for discussions on environmental toxicant exposure, absorption, distribution, metabolism and effects. The historical context for environmental endocrine disruption and the development of the field will also be addressed. In addition, the role of toxicant-induced epigenetic changes will be introduced. Epigenetic changes are important components of the human exposome. Changes can be used to track the relationship between environmental xenobiotic exposures and the occurrence of adverse health consequences. Specific compounds or general chemical classes that have strong potential to induce endocrine disruption as well as modify the epigenome will be reviewed in more detail throughout the course. Current journal articles that detail mechanisms, adverse health effects and vulnerable populations and the utility of monitoring the epigenome in the context of the exposome will be reviewed. • The primary objective of this course is to provide a basis for the discussion of environmentally relevant issues based on the principles |

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| | <p>of toxicology. This course is designed to provide a framework for the discussion of relevant issues from the standpoint of mechanistic toxicology. Books available in the lay press will be reviewed and critiqued by the class for their scientific merit and accuracy.</p> <p>• <i>Upon completion of this course, students should be able to fulfill the following objectives:</i></p> <ul style="list-style-type: none"> • Evaluate key factors that may enhance or ameliorate the toxic responses discussed in class. • Describe the primary routes of exposure for the compounds covered. • Relate the role that xenobiotic biotransformation plays in adverse health outcomes following xenobiotic exposure. • Infer the physiologic and mechanistic basis for target-organ specificity in toxic responses for each organ system. • Describe a primary mechanism for endocrine disruption for each class of compounds discussed. • Critique scientific studies regarding key factors that are important for endocrine disruptor-induced adverse effects. • Explain the role that toxicant-induced epigenetic changes play in the onset of disease later in life. • Explain the utility of the exposome and how it provides a framework for relating exposures throughout the life course to health. • Critique a lay press book for scientific accuracy and accurate reporting of the scientific issues that underpin the book. |
| <p>List of Topics</p> | <ul style="list-style-type: none"> • Introduction to the Epigenome - “Ghost in Your Genes” – PBS / NOVA Special / “Ghost in Your Genes – BBC Special • The Epigenome and the Exposome • Using “-omics” over the lifespan to track health impacts following environmental exposures • Paper Discussion • <i>Silent Spring</i> (multiple class sessions) • Organochlorine pesticides - DDT as the prototype • Endocrine Disruption as a toxicologic model • DES as a model for epigenetic modifications by xenobiotics • <i>Our Stolen Future</i> (multiple class sessions) • Dioxin-like compounds & developmental toxicity • Phthalates & other contaminants • Paper Discussion (multiple class sessions) • In-class Discussions (multiple class sessions) • <i>Sicker, Fatter, Poorer</i> (multiple class sessions) • Endocrine disruptors/Obesogens/Neuroendocrine disruptors • Paper Discussion (multiple class sessions) |

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| | <ul style="list-style-type: none"> • <i>Countdown</i> (multiple class sessions) • Chemicals associated with altered fertility / reproduction • Paper Discussion (multiple class sessions) |
| Learning Activities | <ul style="list-style-type: none"> • The required books are listed above. These books will provide the framework for the in-class discussions. Students are expected to come to class prepared to discuss the assigned readings when called upon. There are no didactic components to this course. All class members are expected to participate fully in the discussions. |
| | <ul style="list-style-type: none"> • Books will be discussed in class over approximately a three-week period for each book. During the last portion of the course, primary journal articles relevant to the topic areas covered will be assigned & discussed. Discussion points will be posted in Canvas® to provide guidance for the readings each week. Basic principles of toxicology that were covered in Toxicology I will be used as the starting point for the discussions within the context of the material presented by each author. Students are expected to have completed the required reading prior to coming to class. In addition, supplementary materials will be posted which may be useful as background. Although these materials are not 'required' reading, reviewing these materials prior to class may be helpful. |
| Student Assessment And Grading Criteria | <ul style="list-style-type: none"> • Grades will be based on class participation, in-class presentation & attendance. Class attendance is expected and the class participation grade will be based on student participation during the in-class discussions and on the Blackboard Discussion Board. • The breakdown for grade distribution is given below: Participation – 45% In-class presentation on Epigenetics & Exposome utility – 10% • Attendance – 45% |
| | <ul style="list-style-type: none"> • Class attendance is included in the class-participation component of the course grade. In addition, active participation in the in-class discussions & discussion boards is expected. • Deadlines for assignments are provided at the time the assignment is made (e.g., presentation). If prior arrangements are not made for turning in materials late, prior to the deadlines for submission, points will be taken off before grading occurs. |
| | <ul style="list-style-type: none"> • The grading scale will be Passing = grade of 75% or better; Failing grade = <75% |
| | <ul style="list-style-type: none"> • Since this is a discussion-based course, students who miss class will be required to submit a 1 to 2-page written summary of the readings that were covered on the day they missed class. |

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| Prerequisites and/or Technical Requirements | <ul style="list-style-type: none"> • Toxicology I is preferred, but students with prior medical &/or other clinical degrees, or those with sufficient basic science backgrounds may take the course with permission from the instructor. |
| | <ul style="list-style-type: none"> • Students should have the latest version of Adobe Acrobat® reader installed on their computers in order to read scanned articles • Sufficiently robust internet access to connect to class should classes be delivered by Webex® |
| Policies and Procedures | <ul style="list-style-type: none"> • Students may withdraw from the course up to 5 PM on April 9, 2021. Students must complete the add / drop form found on the “Student Forms” section of the UTSPH webpage, obtain the instructor’s signature & turn in the form to the Office of Student Services by 5 PM by the last day to withdraw. |
| | <ul style="list-style-type: none"> • Students who are unable to complete the requirements for successful completion of the course may request an incomplete grade. • The request for an incomplete grade must be made prior to the last class day. • The instructor will work with the student to ensure that they have the opportunity to submit the remaining course requirements in order to successfully complete the course by the end of the subsequent term. • Students who are unable to successfully submit the remaining course requirements by the end of the subsequent term will be awarded a grade of F if prior arrangements are not made before the last class day of the subsequent term. |
| | <ul style="list-style-type: none"> • Students with unexcused absences will not be allowed to provide make-up write-ups in lieu of class attendance. Three or more unexcused absences can result in a failing course grade. • Class participants are expected to communicate in a respectful manner with one another in both the in-class discussions and in the online discussion board. |

- SPH Writing Support Services

SPH Writing Support Services provides free writing instruction for all students at all stages of the writing process. An ESL training specialist and an Academic Writing training specialist are available for in-person and online writing consultations. During each writing consultation, the training specialist will work with you to meet your and your instructor's goals for a particular writing assignment. SPH Writing Support Services will assist you in many areas of writing to help you take responsibility for your own writing.

SPH Writing Support Services is located in the SPH Library (RAS E-125) in the Houston campus, but it is available to students at all SPH campuses via interactive television (ITV). To schedule an in-person appointment or an ITV session with SPH Writing Support Services, please call 713-500-9121 or e-mail SPHWritingHub@uth.tmc.edu.

- **Academic Integrity**

Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Individuals found guilty of academic dishonesty may be dismissed from the degree program. It is a student's responsibility to have a clear understanding of how to reference other individuals' work, as well as having a clear understanding in general as to the various aspects of academic dishonesty. Any student accused of a specific act stated in the previous paragraph is subject to UTHealth School of Public Health academic policies and procedures pertaining to violations of the student code of conduct for academic integrity. Each student in this course is expected to abide by the UTHealth School of Public Health Honor Code signed at first matriculation. Any work submitted by a student in this course for academic credit will be the student's own work.

You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy.

During any quiz or exam you must do your own work. Talking or discussion is not permitted during a quiz or exam unless specifically stated, nor may you compare papers, copy from others, lend or borrow calculators, or electronic devices, or collaborate in any way unless specifically stated. Any collaborative behavior during a quiz or exam will result in failure, and may lead to failure of the course and UTHealth SPH disciplinary action. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both held accountable.

Please remember that you signed the academic integrity policy at orientation. No academic dishonesty of any kind (including copying/plagiarism) will be tolerated. All suspected academic dishonesty (actual or attempted) or other violations of the student code of conduct will be immediately reported to the UTHealth SPH Associate Dean for Academic Affairs. You can review the Student

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| | <p>Conduct and Discipline Policy in the Handbook of Operating Procedures (HOOP) at https://www.uth.edu/hoop/policy.htm?id=1448220.</p> |
| | <ul style="list-style-type: none"> • ADA Accommodation UT Policy on Accommodations for Disabilities: UTHealth is committed to providing equal opportunities for qualified employees, job applicants, and students with disabilities in accordance with state and federal law. Student applicants and enrolled students can obtain information concerning program-related accommodations in each school from the school's Section 504 Coordinator (usually found in the Student Affairs office of each school). The Disability Coordinator (in Human Resources) and the Section 504 Coordinators can provide information and referrals regarding campus accessibility, disabled parking permits, transportation services, and other resources. The full policy can be found online in HOOP Policy Number 101, Disability Accommodation (http://www.uth.edu/hoop/policy.htm?id=1448050). <i>If you believe you have a disability requiring an accommodation, whether new or existing, please contact Mary Ann Smith, Assistant Dean of Students and ADA Accommodation Coordinator for UTHealth School of Public Health at mary.a.smith@uth.tmc.edu or (713) 500- 9236</i> |
| Course Calendar SEPARATE DOCUMENT | <ul style="list-style-type: none"> • DO NOT SUBMIT COURSE CALENDAR TO STUDENT AFFAIRS |
| | <ul style="list-style-type: none"> • List class activities and due dates. |
| | <ul style="list-style-type: none"> • Create a separate document for the course calendar, which will allow students to print it. |