

ETX 298-04 (3 Credits)  
(CRN43818)

Summer Session I 2015  
(June 22 – July 31)

***“Emerging Concepts in Environmental Health Science”***

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**Lecture Location/Time:** Meyer Hall ETX Main Conference Room (4<sup>th</sup> Floor 4206),  
Wednesdays, 10:00 a.m. – 12:00 p.m.

**Course Goal:** This course will focus on a current topic in environmental health that is of significant scientific and public controversy and it is intended to provide the students with a unique opportunity to gain insight and understanding of the merits and weaknesses of both sides of these contentious issues. The overall goal is to teach trainees how to critically examine a particular problem and how to interact with colleagues from different disciplines to develop strategies for effectively communicating with each other to address a complex environmental health issue.

**Course Format:** One to two hours of lecture/meeting per week.

Students will participate in an introductory discussion of the chosen topic, including basic concepts, current state of knowledge, what are the outstanding questions or problems, what are the controversial aspects and general considerations and what is the scientific translational aspect and application. Over the remainder of the class, students will be divided into two groups to develop proposals on how they plan to address the specific problem from their assigned perspective. Each group will meet separately with the faculty trainers to brainstorm and analyze relevant literature and discuss approaches for addressing outstanding questions and scientific approaches to support their position. These discussions and interactions will be used to develop a power point presentation in support of their position. During the last class period, each of the two groups will have the opportunity to present and discuss their power point presentation in support of their position on the topic. This will be followed by a discussion/debate between the two groups on the topic area, the presentations and supporting scientific evidence. The class will conclude with both groups developing a set of consensus points that outline the actual current state of knowledge regarding the controversial topic, the strength of the supporting scientific evidence on both sides of the issue, and areas where critical information is lacking and future research is needed. The presentations, consensus points and overall conclusions will be combined into a final summary report.

**Course Registration:** The trainees will officially register for and receive credit for the course during the Fall 2015 quarter.

**Course Grading:** Grades will be based on class participation, the final presentation and final summary report.

## **Topic for the class:**

### **Respiratory effects of wildfires (or more broadly, global climate change): Why worry?**

One major predicted effect of global climate change will be increased temperatures and more frequent drought years in California (and elsewhere). Thus, we might predict an increase in the number and scope of wildfires. As toxicologists, what are the concerns raised by a prediction of increased wildfires and how might we begin to address scientifically evaluating the extent of the increased risks, both human health and ecotoxicological, of this scenario?

- Do the health effects of wildfire smoke differ from those due to other combustion source emissions?
- If so, in what ways and why?
- Is toxicity of wildfire smoke different from that of other combustion sources?
- Other issues?

### **Tentative Schedule: Group 1 meets at 10am and Group 2 meets at 11am.**

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| June 24  | Initial meeting to discuss the class, the project, presentation, panel discussion and final report. Decide on members for each panel.   |
| July 1   | Meeting to discuss initial literature research and draft outlines of report and presentation.   |
| July 8   | Meeting to discuss progress, the draft report and first presentation of the power point talk.   |
| July 15  | Meeting to discuss progress, review of the draft report and second presentation of the power point talk.  |
| July 17 (Friday) or July 20 (Monday) (Date will be decided first day of class (June 24)) | Meeting to discuss progress, review of the final draft report and final presentation of the power point talk. Final draft reports will be exchanged between panels (gives you a week to consider arguments and research supporting the position of the other panel).  |
| July 22  | Presentation of power point presentations from each group (25 minutes each), followed by a panel discussion of the issues from the presentations and reports. The panels will then come together and prepare a brief document describing final conclusions, issues of remaining controversy, issues which remain to be addressed and other relevant issues. This document will be used to generate a joint summary statement complete with a list of final concluding points. |
| July 29  | The final document must be submitted. This report will contain the following: <ol style="list-style-type: none"><li>1. An overall introductory paragraph describing the topic and the goals of the project.</li><li>2. The final report from each of the two panels.</li><li>3. The joint summary statement.</li><li>4. Appendices containing the power point presentations from each group (two images per page).</li></ol>  |

## Some references to get started with:

### Wildfire Smoke and Health Risks

1. Verma, V., A. Polidori, J. J. Schauer, M. M. Shafer, F. R. Cassee, and C. Sioutas. 2009. Physicochemical and toxicological profiles of particulate matter in Los Angeles during the October 2007 southern California wildfires. *Environmental Science and Technology*, v. 43, no. 3, p. 954-960. 10.1021/es8021667
2. Weinhold, B. 2011. Fields and Forests in Flames: Vegetation Smoke and Human Health. *Environmental Health Perspectives* 119 (9): A386–A393 | <http://dx.doi.org/10.1289/ehp.119-A386>
3. Finlay SE, Moffat A, Gazzard R, Baker D, Murray V. Health Impacts of Wildfires. *PLOS Current Disasters*. 2012 Nov 2. Edition 1. doi: 10.1371/4f959951cce2c.
4. Wegesser TC, Franzi LM, Mitloehner FM, Eiguren-Fernandez A, Last JA. 2010. Lung antioxidant and cytokine responses to coarse and fine particulate matter from the great California wildfires of 2008. *Inhal Toxicol*. 22(7):561-70. doi: 10.3109/08958370903571849. PMID:20388000
5. Wegesser TC, Pinkerton KE, Last JA. 2009. California wildfires of 2008: coarse and fine particulate matter toxicity. *Environ Health Perspect*. 117(6):893-7. doi: 10.1289/ehp.0800166. PMID:19590679
6. Wegesser TC, Last JA. 2008. Lung response to coarse PM: bioassay in mice. *Toxicol Appl Pharmacol*. 15;230(2):159-66. doi: 10.1016/j.taap.2008.02.013. PMID:18384828