**Session I: Saturday, January 15, 2022 – CHP**

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|  | **Time** | **Session Title** | **Speaker(s)** | **Reading(s)** |
| **1** | **9:00 AM** | **Objectives and Orientation** | **Roger Clemens and Mary Ellen Cosenza** |  |
| **2** | **9:15 AM** | **Introduction to Toxicology** | **David Hovland** | Text, Chapters 1-4 (posted on Blackboard) |
|  | **10:30 AM** | **Morning Break** | | |
| **3** | **10:45 AM** | **General Concepts of Toxicology:**  **Factors Influencing Toxicity** | **David Hovland** |  |
|  | **12:00 PM** | **Luncheon Break** | | |
| **4** | **1:00 PM** | **Methods and Study Design** | **Mary Ellen Cosenza** |  |
|  | **1:45 PM** | **Afternoon Break** | | |
| **5** | **2:00 pm** | Aloe vera: Controversy in Toxicology and Regulatory Movement | **Wally Hayes** | Pressman et al., Sage Open Medicine 2019 doi: org/10.1177/2050312119875921  Galli et al., Regulatory Tox Pharmacol 2021 doi: 10.1016/j.yrtph.2021.104967 |
| **6** | **3:30 PM** | Review “Forensics”; Course Assignments, Breakout Sessions & Exam | **Faculty** | See Assignment I |

**\* Assignments with Worksheets:**

**Assignment II: Poison Squad (~ 2 hrs) (**[**https://www.pbs.org/wgbh/americanexperience/films/poison-squad/**](https://www.pbs.org/wgbh/americanexperience/films/poison-squad/)**) + 2018 lecture by Deborah Blum (**[**https://www.youtube.com/watch?feature=youtu.be&v=uP8KTzPIaeY**](https://www.youtube.com/watch?feature=youtu.be&v=uP8KTzPIaeY)**)**

**Assignment III: GMO Controversy – Food Evolution video (92 min)   
(**[**https://uscpharmacyschool.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=f98a6c5e-cccf-44af-996d-aa3e0166b2c8**](https://uscpharmacyschool.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=f98a6c5e-cccf-44af-996d-aa3e0166b2c8)**)**

**Assignment IV: Innate Food Toxins – Video narrated by Dr. Richard Hall (27 min); Safe at the Plate, Nutrition Today, 1977; (**[**https://uscpharmacyschool.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=65cca64c-b8ae-48c8-8929-ab3c013b47ef**](https://uscpharmacyschool.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=65cca64c-b8ae-48c8-8929-ab3c013b47ef)**)**

**Session II: Saturday, February 12, 2022– CHP**

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|  | **Time** | **Session Title** | **Speaker(s)** | **Reading(s)** |
| **1** | **9:00 AM** | **Pharmaceutical Toxicology** | **David Hovland** | Agúndez et al., Front Cell Neurosci (2014) doi: 10.3389/fncel.2014.00335  Driscoll et al., J Med Chem (2020) doi: 10.1021/acs.jmedchem.0c00026 |
|  | **10:30 AM** | **Morning Break** | | |
| **2** | **10:45 AM** | **Pharmacokinetics and Toxicokinetics** | **Robert Harris** | McClung et al., Osteoporos Int (2013)  doi: 10.1007/s00198-012-2052-4  Howland, Chapter 8, Pharmacokinetic & Toxicokinetic Principles |
|  | **12:00 PM** | **Luncheon Break** | | |
| **3** | **1:00 PM** | **Biotechnology-derived Pharmaceutical Toxicology** | **David Hovland** | ICH guideline S6 (R1) – Preclinical safety evaluation of  biotechnology-derived pharmaceuticals (2011) |
| **4** | **2:30 PM** | **FAAH Case Study** | **Peter Pressman** | Kerbrat et al., N Engl J Med. 2016; doi: 10.1056/NEJMoa1604221  Hayes et al., J Pharmacol Toxicol Methods. 2020; doi: 10.1016/j.vascn.2020.106677  Hayes et al., Regul Toxicol Pharmacol. 2020; doi: 10.1016/j.yrtph.2019.104557 |
|  | **3:30 PM** | **Afternoon Break** | | |
| **5** | **3:45 PM** | **Environmental and Toxicological Implications in Food Waste Management** | **Roger Clemens** | EPA (2021) Emerging Issues In Food Waste Management Persistent Chemical Contaminants |

**\*** Take home midterm examination; due NLT 10:00 am, Saturday, March 19, 2022

**Session III: Saturday, March 19, 2022 – CHP**

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|  | **Time** | **Session Title** | **Speaker(s)** | **Reading(s)** |
| 1 | 9:00 AM | Mutagenicity and Carcinogenicity | Mary Ellen Cosenza | See Handouts;  ICH S1A – Carcinogenicity studies  S1 Concept paper  ICH S2 (R1) Genotoxicity testing |
|  | 10:15 AM | Morning Break | | |
| 2 | 10:30 AM | **Drug Toxicology: TeGenero History/Discussion** | **Mary Ellen Cosenza** | See TeGenero packet (TGN 1412)  Attarwick 2010. Doi: 10.4103/0975-1483.66810 |
|  | 12:00 PM | Luncheon Break | | |
| 3 | 1:00 PM | **Vaping Controversy** | **Peter Pressman** | Kelesidis et al., JAMA Peds 2021; doi: 10.1001/jamapediatrics.2021.2351  Layden et al., N Engl J Med. 2020; doi: 10.1056/NEJMoa1911614  Blount et al., N Engl J Med. 2020; doi: 10.1056/NEJMoa1916433  Reinberg. Genetic Literacy 2021  Xie et al., JAMA Netw Open. 2020; doi:10.1001/jamanetworkopen.2020.20816 |
|  | 2:15 PM | Afternoon Break | | |
| 4 | 2:30 PM | **Glyphosate Controversy** | ****Roger Clemens**** | Acquavella et al., Crit Rev Toxicol 2016;46(S1):28–43  Williams et al., Crit Rev Toxicol 2016;46(S1):44-55  Brusick et al., Crit Rev Toxicol 2016;46(S1):56-74  Hao et al., J Environ Sci 2019;54(9):737–744 |
| 5 | 3:30 PM | **Reproductive Toxicology** | **Mary Ellen Cosenza** | Chapter 20 (Toxic Responses of the Reproductive System - <https://accesspharmacy.mhmedical.com/content.aspx?bookid=1540&sectionid=92527429>); ICH S5 (R3) Repro Tox |
| 6 | 4:30 PM | **Prep for Drug Breakout Sessions** | **Mary Ellen Cosenza** | Assignment VI for Session IV |

**Session IV: Saturday, April 2, 2022 – CHP**

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|  | **Time** | **Session Title** | **Speaker(s)** | **Reading(s)** |
| 1 | 9:00 AM | **Environmental Toxicology** | **Stephanie Greene** | **Costa – Chapter 28 – Air Pollution**  **Kendall et al – Chapter 29 – Ecotoxicology**  **Heald & Kroll (2021) Science doi: 10.1126/science.abl5978** |
|  | 10:00 AM | Morning Break | | |
| 2 | 10:15 AM | **FDA Mock Meeting (Problem-Solving Exercise** | **Mary Ellen Cosenza** | **See Handouts** |
|  | 12:00 PM | Luncheon Break | | |
| 3 | 1:00 PM | **Poisons – Methanol, Ethanol, Cannabinoids** | **Peter Pressman** | Flanagan & Pounder, Forensic Sci Intl 2010;  Pressman et al., Cutaneous Ocular Toxicology 2020;  Pohanka, Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2016  Flygare & Sander, Sem Cancer Biol 2008; doi: 10.1016/j.semcancer.2007.12.008  Croxford & Yamamura, J Neuroimmunol 2005; doi: 10.1016/j.jneuroim.2005.04.023  Hill et al., Cell 2009; doi: 10.1016/j.tips.2009.06.006  Karl et al., Expert Opin Ther Targets, 2012; doi: 10.1517/14728222.2012.671812  Guindon & Hohmann, 2011; doi: 10.1111/j.1476-5381.2011.001327.x |
|  | 2:30 PM | Afternoon Break | | |
| 4 | 2:45 PM | **Innovative Molecules (Cell and gene therapies; Car-T cells, etc.)** | **Mary Ellen Cosenza** |  |

**Session V: Saturday, April 9, 2022 – CHP**

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|  | **Time** | **Session Title** | **Speaker(s)** | **Reading(s)** |
| **1** | **9:00 A.M.** | **Human Milk Oligosaccharides (HMO)** | Claire Kruger | Parschat et al., Food Chem Toxicol 2020; doi: 10.1016/j.fct.2020.111118  Vandenplas et al., Nutrients 2018, doi:10.3390/nu10091161 |
|  | **10:30 A.M.** | **Morning Break** | | |
| **2** | **10:45 A.M.** | **Hot & Controversial Topics in Food & Public Health: Red Meat, Chlorfenapyr, Acrylamide, Cannabinoids (part 1)** | **Roger Clemens** | Tharaknath et al., Clinical and radiological findings in chlorfenapyr poisoning. Ann Indian Acad Neurol. 2013;  Krieger, Handbook of Pesticide Toxicology, 2001, Chapter 57, lnhibitors and Uncouplers of Mitochondrial Oxidative Phosphorylation, pp 1241-1243  Bouvard et al., Lancet 2015; doi: 10.1016/S1470-2045(15)00444-1;  Alexander et al., J Am Coll Nutr 2015; 34:521-43  Bylsma & Alexander, Nutr J 2015; 14:125  Johnston et al., Ann Intern Med 2019;171:756-764  Zeraatkar et al., Ann Intern Med 2019;171:703-710 |
|  | **12:00 P.M.** | **Luncheon Break** | | |
| **3** | **1:00 P.M.** | **Hot & Controversial Topics in Food & Public Health: Carrageenan, Caffeine, Food Colors, Food Additives (part 2)** | **Roger Clemens & Peter Pressman** | McKim et al., Crit Rev Food Sci Nutr 2019; 59 (19):3054-3073  Zulli et al., Eur J Nutr 2016;;55(4):1331-43  Simon et al., J Food Sci 2017;82(11):2539-2553  Oplatowska-Stachowiak & Elliott Crit Rev Food Sci Nutr 2017;57(3):524-548 |
|  | **2:15 P.M** | **Afternoon Break** |  |  |
| **4** | **2:30 – 4:45 P.M** | **Student Presentations** | **Students** |  |
| **5** | **4:45 P.M.** | **Course Wrap Up** | **Everyone** |  |

\*\* Spring 2022: Classes End April 29, 2022; Final Exams May 4-11, 2022; Grades due May 12, 2022; USC Commencement May 13, 2022

Take home final examination for RSCI 525 due NLT 10:00 am, Saturday, April 23, 2022