

ENV H 531 A Wi 22: Neurotoxicology

[Jump to Today](#)

 Edit

ENVH 531 NEUROTOXICOLOGY

Winter Quarter 2022

M & W 3:30-4:50; South Campus Center (SOCC) 342

NOTE: As per 12/21/2021 guidance from the UW, Classes will be online for the first week of Winter quarter (1/3/2021 – 1/5/2021), and are currently scheduled to be in-person for the remainder of the quarter. Students will be notified if any changes to UW COVID-19 policies further affect in-person instruction.

Prof. Toby B. Cole Tel. 543 9300; e-mail: tobycole@uw.edu (<mailto:tobycole@uw.edu>)

Prof. Lucio G. Costa Tel. 543-2831; e-mail: lvcosta@uw.edu (<mailto:lvcosta@uw.edu>)

Zoom Meeting ID: 999 8934 4129

Zoom Meeting Link: <https://washington.zoom.us/j/99989344129>

(<https://washington.zoom.us/j/99989344129>)

Date	Topic	Instructor	
January	3	Introduction/Overview	Cole/Costa
	5	Manifestations & mechanisms I	Costa
	10	Manifestations & mechanisms II	Costa
	12	Astrocytes, microglia and neuroinflammation	Cole
	17	Martin Luther King Jr. Day	Holiday (No Class)
	19	Blood-Brain Barrier	Erickson
	24	Neuronal death and neurogenesis	Wang
	26	The microbiome and neurotoxicity	Cui
	31	Behavioral Tox/ <u>Teratol I</u>	Cole
February	2	Behavioral Tox/ <u>Teratol II</u>	Burbacher
	7	Environment and ASD	Cole
	9	Environment and PD	Cole
	14	Environment and AD	<u>Kukull</u>
	16	Case Study: Air pollution	Cole
	21	Presidents' Day	Holiday (No Class)
	23	Case Study: Domoic acid	Petroff
	28	Case Study: Methylmercury	Ponce
March	2	Student presentations	Cole/Costa
	7	Student presentations	Cole/Costa
	9	Student presentations	Cole/Costa
	17 (Thu)	FINAL EXAM	2:30 – 4:20 PM (SOCC 342)

ENVH 531 – NEUROTOXICOLOGY

Winter Quarter, 2022 – Dr. Toby B. Cole / Dr. Lucio G. Costa

Course Objectives: The main objective of this advanced toxicology class is to provide a more in depth coverage of various areas of neurotoxicology. After completion of the course students will have a fundamental understanding of the principles and issues of neurotoxicology. They should be able to define neurotoxicity, recognize neurotoxic symptoms, explain mechanisms of neurotoxicity, identify the major classes of neurotoxic chemicals, evaluate types of neurotoxic effects, discuss the effects and mechanisms of major neurotoxicants, discuss the role of neurotoxicants in neurodevelopmental and neurodegenerative diseases, and illustrate the role of neurotoxicology in toxicology, public health and environmental and occupational health sciences. Guest lecturers will be a valuable asset to the course and will assist in providing coverage of topics within their respective areas of expertise.

Intended Student Audience and prerequisites: Master and PhD students in the Department of Environmental and Occupational Health Sciences and graduate students from other DEOHS programs, and from other allied biomedical science schools and departments sharing an interest in toxicology, are the main audience for this class. This would include students from the Schools of Fisheries, Pharmacy, Oceanography, and Environment, from the programs in Neurobiology and Cellular and Molecular Biology, and from the Depts. of Pharmacology, Pathology, Physiology and Biophysics, or Biochemistry. Prerequisites for this class include courses in general biology, chemistry, and biochemistry. Some basic knowledge of neuroscience would be useful.

Readings: Handouts and eventual additional reading material will be posted to Canvas or distributed at each class by the instructor.

Course credits and organization: The class will be offered for 3 credits with two 80 minute lectures per week (Monday and Wednesday 3:30-4:50). Shortly after the beginning of the course students are expected to choose a topic for an oral presentation. A list of possible topics will be discussed, however, students are encouraged to propose additional topics and themes and discuss them with the instructor. The purpose of the oral presentation (~20 -30 min) is to focus on specific aspects of neurotoxicology not covered in class. A discussion will follow.

Each student should provide a copy of the Powerpoint presentation to the instructor (by e-mail) and possibly a print-out for the other students.

A final exam will consist of three-four essay questions on topics covered in the course.

Grading: The final grade will be based of the following: final exam (50%), oral presentation (50%).

ENVH 531 – NEUROTOXICOLOGY

Winter Quarter, 2022 – Dr. Toby B. Cole / Dr. Lucio G. Costa

Tel: (206) 543-9300; Email: tobycole@uw.edu (<mailto:tobycole@uw.edu>)

Academic Integrity: Students at the University of Washington are expected to maintain the highest standard of academic conduct, professional honesty, and personal integrity. The UW School of Public Health is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, and other misconduct are serious violations of the UW Student Conduct Code (WAC 478-120). We expect you to know and follow the University's policies on cheating and plagiarism, and the SPH Academic Integrity Policy (<http://sph.washington.edu/students/academicintegrity/> (<http://sph.washington.edu/students/academicintegrity/>)). Any suspected case of academic misconduct will be handled according to University of Washington regulations. For more informations, see the University of Washington Community Standard and Student Conduct website.

Disability Resources: Your experience in the class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but are not limited to mental health, attention-related, learning, vision, hearing, physical or health impact), you are welcome to contact DRS at 206-543-8924 or uwdrs@uw.edu (<mailto:uwdrs@uw.edu>) or disability.uw.edu. DRS offers resources and coordinates reasonable accommodations for students with disabilities or temporary health conditions. Reasonable accommodations are

established through an interactive process between you, your instructor(s) and DRS. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law.

Religious Accommodation: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at [Religious Accommodations Policy](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/) [\(https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/\)](https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using [the Religious Accommodations Request form](https://registrar.washington.edu/students/religious-accommodations-request/) [\(https://registrar.washington.edu/students/religious-accommodations-request/\)](https://registrar.washington.edu/students/religious-accommodations-request/).

COVID-related expectations

Per UW policy, this class will be conducted in person. Therefore, unless you meet the criteria for an accommodation from Disability Resources for Students (DRS) or a special arrangement approved by the SPH Office of the Dean that allows you to take the course remotely [\[see student communications here\]](https://sph.washington.edu/sites/default/files/2021-08/UWSPH_RTC_Student-Email.pdf) [\(https://sph.washington.edu/sites/default/files/2021-08/UWSPH_RTC_Student-Email.pdf\)](https://sph.washington.edu/sites/default/files/2021-08/UWSPH_RTC_Student-Email.pdf) you should only register for this class if you can attend in-person.

- Please contact UW Disability Resources for Students (DRS) directly if you feel you may be eligible for an accommodation based on your status as an immunocompromised individual or based on other diagnosed physical or mental health conditions that might prevent you from being able to take classes in-person.
- If you are a student enrolled in a program in SPH, and you are either living with an individual who is immunocompromised, OR you are unable to obtain a visa to travel to the US, you may be eligible for a “special arrangement” that will allow you to take this course remotely. Requests for special arrangements to take the class remotely should have been submitted to and approved by the Students and Academic Services team in the Office of the Dean before the beginning of the quarter. If you have questions about this type of arrangement, please reach out to Student and Academic Services by email at sphas@uw.edu [\(mailto:sphas@uw.edu\)](mailto:sphas@uw.edu).

All UW students are expected to complete their [vaccine attestation](https://www.washington.edu/coronavirus/vaccination-requirement/) [\(https://www.washington.edu/coronavirus/vaccination-requirement/\)](https://www.washington.edu/coronavirus/vaccination-requirement/) before arriving on campus and to follow the campus-wide face-covering policy at all times. You are expected to follow state, local, and UW COVID-19 policies and recommendations. If you feel ill or exhibit possible COVID symptoms, you should not come to class. If you need to temporarily quarantine or isolate per CDC guidance and/or [campus policy](https://www.washington.edu/coronavirus/2021/08/31/autumn-quarter-health-and-safety-measures-message-to-uw-personnel/) [\(https://www.washington.edu/coronavirus/2021/08/31/autumn-quarter-health-and-safety-measures-message-to-uw-personnel/\)](https://www.washington.edu/coronavirus/2021/08/31/autumn-quarter-health-and-safety-measures-message-to-uw-personnel/), you are responsible for notifying your instructors as soon as possible by email. **If you receive a positive COVID-19 test result, you must report to campus Environmental Health & Safety (EH&S) by emailing covidehc@uw.edu [\(mailto:covidehc@uw.edu\)](mailto:covidehc@uw.edu) or calling 206-626-3344.**

No food or drinks are allowed in the classroom.


Please check your email daily BEFORE coming to class. If we need to conduct class remotely because the instructor or a guest speaker is complying with UW policies and unable to attend in person, we will send all

registered students an email with a Zoom link for remote instruction. Thank you for your patience and support as we all transition together back to in-person learning!

Course Summary:

Date	Details	Due
Mon Jan 3, 2022	 Introduction/Overview - Cole/Costa https://canvas.uw.edu/calendar?event_id=2412378&include_contexts=course_1515831	3:30pm to 5pm
Wed Jan 5, 2022	 Manifestations & mechanisms I - Costa https://canvas.uw.edu/calendar?event_id=2412379&include_contexts=course_1515831	3:30pm to 5pm
Mon Jan 10, 2022	 Manifestations & mechanisms II - Costa https://canvas.uw.edu/calendar?event_id=2412380&include_contexts=course_1515831	3:30pm to 5pm
Wed Jan 12, 2022	 Astrocytes, microglia and Cole neuroinflammation - Cole https://canvas.uw.edu/calendar?event_id=2412381&include_contexts=course_1515831	3:30pm to 5pm
Mon Jan 17, 2022	 Martin Luther King Jr. Day Holiday (No Class) https://canvas.uw.edu/calendar?event_id=2412382&include_contexts=course_1515831	12am
Wed Jan 19, 2022	 Blood-Brain Barrier - Erickson https://canvas.uw.edu/calendar?event_id=2412383&include_contexts=course_1515831	3:30pm to 5pm
Mon Jan 24, 2022	 Neuronal death and neurogenesis - Wang https://canvas.uw.edu/calendar?event_id=2412384&include_contexts=course_1515831	3:30pm to 5pm
Wed Jan 26, 2022	 The microbiome and neurotoxicity - Cui https://canvas.uw.edu/calendar?event_id=2412385&include_contexts=course_1515831	3:30pm to 5pm
Mon Jan 31, 2022	 Behavioral Tox/Teratol I - Cole https://canvas.uw.edu/calendar?event_id=2412386&include_contexts=course_1515831	3:30pm to 5pm

Date	Details	Due
Wed Feb 2, 2022	 Behavioral Tox/Teratol II - Burbacher https://canvas.uw.edu/calendar?event_id=2412387&include_contexts=course_1515831	3:30pm to 5pm
Mon Feb 7, 2022	 Environment and ASD - Cole https://canvas.uw.edu/calendar?event_id=2412388&include_contexts=course_1515831	3:30pm to 5pm
Wed Feb 9, 2022	 Environment and PD - Cole https://canvas.uw.edu/calendar?event_id=2412389&include_contexts=course_1515831	3:30pm to 5pm
Mon Feb 14, 2022	 Environment and AD - Kukull https://canvas.uw.edu/calendar?event_id=2412390&include_contexts=course_1515831	3:30pm to 5pm
Wed Feb 16, 2022	 Case Study: Air pollution - Cole https://canvas.uw.edu/calendar?event_id=2412391&include_contexts=course_1515831	3:30pm to 5pm
Mon Feb 21, 2022	 Presidents' Day - Holiday (No Class) https://canvas.uw.edu/calendar?event_id=2412392&include_contexts=course_1515831	12am
Wed Feb 23, 2022	 Case Study: Domoic acid - Petroff https://canvas.uw.edu/calendar?event_id=2412393&include_contexts=course_1515831	3:30pm to 5pm
Mon Feb 28, 2022	 Case Study: Methylmercury - Ponce https://canvas.uw.edu/calendar?event_id=2412394&include_contexts=course_1515831	3:30pm to 5pm
Wed Mar 2, 2022	 Student presentations - Cole/Costa https://canvas.uw.edu/calendar?event_id=2412395&include_contexts=course_1515831	3:30pm to 5pm
Mon Mar 7, 2022	 Student presentations - Cole/Costa https://canvas.uw.edu/calendar?event_id=2412396&include_contexts=course_1515831	3:30pm to 5pm
Wed Mar 9, 2022	 Student presentations - Cole/Costa https://canvas.uw.edu/calendar?event_id=2412397&include_contexts=course_1515831	3:30pm to 5pm

Date	Details	Due
Thu Mar 17, 2022	 FINAL EXAM - SOCC 342 (https://canvas.uw.edu/calendar? event_id=2417374&include_contexts=course_1515831)	2:30pm to 4:20pm
