

ENTOMOLOGY 133 - URBAN ENTOMOLOGY

Spring 2024

Instructor: Dong-Hwan Choe

LEC MWF 8:00 a.m. - 8:50 a.m. ENTMU 103 (ENTM Research Museum Classroom)
LAB MWF 9:00 a.m. - 9:50 a.m. ENTMU 103 (ENTM Research Museum Classroom)

Date	Subject
April	1 Introduction; Cockroaches
	3-5 Cockroaches
	8-10 Cockroaches
	12 Cockroaches
	15-17 Fleas, Ticks, Mites, & Bed Bugs
	19 Bed Bugs / Spider (invited speaker TBD)
	22 Miscellaneous Arthropod Pests
	24-26 Fabric Pests
	29 EXAM I (range: Cockroaches – Fabric Pests)
May	1 Stored Product Insects / Museum Pests (invited speaker TBD)
	3-6 Stored Product Insects
	8-10 Ants Biology
	13-15 Ants Biology / Ants Control
	17-20 Wasps and Bees
	22 Fungi & Wood-Destroying Organisms (WDOs)
	24 Wood-Destroying Organisms; Termites
	27 Memorial Day
	29 EXAM II (range: Stored Product Insects - Wasps and Bees)
	31 Termites
June	3-5 Termites
	7 Termites / Subterranean Termites (invited speaker TBD)
	8 Final Examination (ENTM museum classroom) (range: Fungi & WDOs – Termite)

Ebeling, W. 1975. Urban Entomology. Univ. Calif., Div. Agr. Sci. 695 pp. ([Online version](#))

Mallis, A. 2011. Handbook of Pest Control. 10th Mallis Handbook LLC. 1599 pp.

Course content includes:

- 1) Biology of major insect / arthropod groups in urban environment
- 2) Identification of major insect / arthropod groups in urban environment to Family / Genus / Species level
- 3) Management of the pest insects / arthropods
- 4) Understanding current research for major insect / arthropod groups in urban environment
- 5) Designing / conducting effective laboratory toxicological / behavioral assays with major urban pests

Text books:

Electronic photocopies of important pages will be provided. Hard copies of these books are also available in Reserves of Science Library.

- Ebeling, W. 1975. Urban Entomology. Univ. Calif., Div. Agr. Sci. 695 pp.
- Mallis, A. 2011. Handbook of Pest Control. 10th Mallis Handbook LLC. 1599 pp.

Laboratory:

- (1) Identification of major insect / arthropod groups in urban environment to Family / Genus / Species level
- (2) Toxicological / behavioral assay demonstrations
 - Concept of lethal dose
 - Concepts of repellent / attractant / stimulant / deterrent
 - Chemical ecology of insects and its application for practical pest management (ants, bed bugs, termites)
 - Insect learning and its implication for practical pest management (cockroach)

Grading and exams:

- a) Three exams 100 pts. each (written exam – 60%; practicals – 40%) : 300 pts.
- b) Laboratory participation: 100 pts.
- c) Assignment (TBD): 100 pts.

Total 500 pts. (Scale- 90%-A, 80%-B, 70%-C, 60%-D)

Assignments:

TBD

Some useful papers that might be helpful:

Martin et al. (2015) **Evolution of the indoor biome**. *Trends in Ecology & Evolution*. 2015; 30:223–232. doi: 10.1016/j.tree.2015.02.001.

Bertone, M. A., Leong, M., Bayless, K. M., Malow, T. L. F., Dunn, R. R., & Trautwein, M. D. (2016). **Arthropods of the great indoors: characterizing diversity inside urban and suburban homes**. *PeerJ*, 4, e1582. <http://doi.org/10.7717/peerj.1582>

Rust, M. K., Su, N.-Y. (2012) **Managing social insects of urban importance**. *Annual Review of Entomology*. 57: 355-375. doi: 10.1146/annurev-ento-120710-100634

Phillips, T. W., Throne, J. E. (2010) **Biorational approaches to managing stored-product insects**. *Annual Review of Entomology*. 55: 375-397. doi: 10.1146/annurev.ento.54.110807.090451

Rust MK, Lee CY, Bennett GW, Robinson WH. (2024) **The Emergence and Sustainability of Urban Entomology**. *Annu Rev Entomol*. 69:59-79. <https://doi.org/10.1146/annurev-ento-012423-110612>

Silverman, J., Brightwell, R. J. (2008) **The Argentine ant: challenges in managing an invasive unicolonial pest**. *Annual Review of Entomology*. 53: 231-252. doi: 10.1146/annurev.ento.53.103106.093450

McIntyre, N. E. (2000) **Ecology of Urban Arthropods: a Review and a Call to Action**. *Annals of the Entomological Society of America*. 93: 825–835. [https://doi.org/10.1603/0013-8746\(2000\)093\[0825:EOUAAR\]2.0.CO;2](https://doi.org/10.1603/0013-8746(2000)093[0825:EOUAAR]2.0.CO;2)