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| **ENTOMOLOGY 133 - URBAN ENTOMOLOGY**Spring 2022 Instructor: Dong-Hwan ChoeLEC 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  |
| March | 28-30 | Introduction; Cockroaches |
| March-April | 30-1 | Cockroaches |
| April | 4-6 | Cockroaches |
|  | 6-8 | Fleas & Bed Bugs |
|  | 11-13 | Fleas & Bed Bugs |
|  | 13-15 | Miscellaneous Arthropod Pests / Spider (Rick Vetter, April 15, 9AM) |
|  | 18-20 | Fabric Pests |
|  | 22 | **EXAM I** |
|  | 25-27 | Stored Product Insects / Museum Pests (Tania Collas, April 27, 9AM) |
| April-May | 29-2 | Stored Product Insects  |
| May | 2-4 | Ants |
|  | 4-6 | Ants |
|  | 9-11 | Ants Control  |
|  | 11-13 | Wasps and Bees |
|  | 16-18 | Fungi & Wood-Destroying Organisms |
|  | 20 | **EXAM II** |
|  | 23-25 | Wood-Destroying Organisms; Termites |
|  | 25-27 | Termites  |
| May-June | 30 | Memorial Day |
|  | 1 | Termites / Subterranean Termites (Dr. Chow-Yang Lee, 8AM) |
|  | 3 | Research Paper Presentation |
|  | ***TBD*** | ***Final Examination (ENTM museum classroom)*** |

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.

[www.entomology.ucr.edu/ebeling/](http://www.entomology.ucr.edu/ebeling/)

**Course content includes:**

1. Biology of major insect / arthropod groups in urban environment
2. Correct identification of major insect / arthropod groups in urban environment to Family / Genus / Species level
3. Management methods for 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:**

1. Three exams 100 pts. each (written exam – 60%; practicals – 40%) : 300 pts.
2. Laboratory participation / reports: 100 pts.
3. Research paper presentation (2 papers): 100 pts.

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

**Assignments and exams:**

There will be an assignment for literature research and presentation. Several review articles (see below) will be provided for students, and each student will choose a specific topic for primary research article summarization / presentation. Depending upon the topic, students will have an option to add their own small experimental data in the presentation. The presentation will be prepared using PowerPoint slide and will be presented to the other students and instructor during one of the laboratory sessions. The students will have an opportunity to ask questions and respond to the questions (10 min presentation / 2 min Q &A). See *Appendix* for the grading rubric for the presentation.

**Some useful papers that might be helpful to prepare your research paper presentation:**

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

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%282000%29093%5B0825%3AEOUAAR%5D2.0.CO;2)

**Appendix.** Research paper presentation score sheet example (10 min presentation / 2 min Q & A)

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|  |  | Pt |  | Score |
| Scientific content (60%) | Abstract | 10 | Abstract is informative and well written. Presentation correlates with abstract |  |
| Content | 10 | Introduction & background w/ pertinent literature cited |  |
| 10 | Objectives clearly stated & concise |  |
| 10 | Materials & methods (study design) clear & concise |  |
| 10 | Results & discussion clear, concise, and accurate |  |
| 10 | Significance of results to field of study |  |
| Presentation (40%) | Organization | 10 | Logical order, minimum redundancy, smooth transitions between presentation sections |  |
| Slides | 10 | Legible w/ large fonts, color contrast, no conflicting backgrounds, Text w/ no grammatical errors, not excessively wordy, effective use of figures and/or tables |  |
| Delivery | 10 | Clear and audible speech, eye contact with audience, enthusiastic delivery |  |
| 10 | Effective use of time |  |

General comments: