



**UM** | Faculty of Agricultural  
and Food Sciences

## Department of Entomology

**Course Title: World of Bugs**

**Course Number: ENTM 1000**

**Academic Session:** Winter 2025

**Credit Hours:** 3

**Location, Meeting Days and Class Hours:**

**Room** 130 Agriculture

Monday/Wednesday/Friday 9:30 – 10:20 AM

### Calendar Description:

A survey of insect biology and life styles with emphasis on insect diversity and human-insect interactions.

### Instructor Information:

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**Dr. Terry Galloway (TDG)**, 207 Animal Science/Entomology Building

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**Dr. Jason Gibbs (JG)**, 213A Animal Science/Entomology Building (Phone 204 474-7485)

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**Dr. Neil Holliday (NJH)**, 207 Animal Science/Entomology Building

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**Dr. Pat MacKay (PAM)**, 214 Animal Science/Entomology Building

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Office hours: Email for appointment

### Optional course texts:

Gullen, P.J. and Cranston, P.S. 2014. The Insects: An Outline in Entomology. 5th ed. Blackwell Science. Oxford. 595 pp.

Whitfield, J.B. and Purcell, A.H. 2013. Daly and Doyen's Introduction to Insect Biology and Biodiversity 3<sup>rd</sup> ed. Oxford University Press. New York. 734 pp.

Berenbaum, M.R. 1995. Bugs in the System: Insects and their Impact on Human Affairs. Addison Wesley. Reading (MA).

Marshall, S.A. 2017. Insects: Their Natural History and Diversity. Firefly Books. Richmond Hill, ON. 736 pp.

### Examinations and Grades:

Your grade in this course is determined by the following three non-cumulative tests.

| Examination | Date  | Percentage |
|-------------|---|------------|
| Test 1      | Monday, 3 Feb, 2025   | 33%        |
| Test 2      | Monday, 10 March, 2025  | 33%        |
| Test 3*     | Scheduled by University during exam period, treated as a final exam | 33%        |

Students are required to write all tests on dates as scheduled. If one of the first two tests is missed due to an extenuating circumstance (See: [temporary student absence form](#) and [policy](#)), or with prior written approval from the course instructor, the marks allocated to it will re-allocated to subsequent tests. All University policies associated with course final exams will apply to test 3.

### Important Dates:

First day of course ..... January 6, 2025

Voluntary withdrawal date ..... March 19, 2025

Final day of course ..... April 9, 2025

Exam period ..... April 11 – April 25, 2025

### Letter Grade Equivalency:

A+ = >90%; A=80-89%; B+ =75-79%; B=70-74%; C+=65-69%; C=60-64%; D=50-59%; F=<50%.

### Academic Integrity

All forms of cheating in examinations are subject to serious [academic discipline](#). Cheating on examinations or tests may take the form of copying from another student or using unauthorized materials during an exam. Academic misconduct on exams can also include impersonation, duplicate submission, and inappropriate collaboration. A student found guilty of contributing to cheating in examinations is also subject to serious academic discipline. False declarations on the temporary student absence form are also considered a breach of academic integrity and may result in discipline. Students should acquaint themselves with the University's academic integrity policies at <http://umanitoba.ca/student-supports/academic-supports/academic-integrity>

**Winter 2025 schedule:**

| Lecture | Week | Date   | Day | Lecturer   | Topic  |
|---------|------|--------|-----|------------|--|
| 1       | 1    | 06-Jan | Mon | AC / All   | Outline, introductions, overview                             |
| 2       | 1    | 08-Jan | Wed | KR         | What makes an insect an insect (external anatomy)            |
| 3       | 1    | 10-Jan | Fri | KR         | What's in a bug? (internal anatomy)                          |
| 4       | 2    | 13-Jan | Mon | YL         | Why insects drive the world - part I                         |
| 5       | 2    | 15-Jan | Wed | YL         | Why insects drive the world - part II                        |
| 6       | 2    | 17-Jan | Fri | JG         | Fantastic bugs and where to find them                        |
| 7       | 3    | 20-Jan | Mon | AC         | They really get around                                       |
| 8       | 3    | 22-Jan | Wed | AC         | It's not what it looks like (mimicry)                        |
| 9       | 3    | 24-Jan | Fri | JG         | The evolution revolution                                     |
| 10      | 4    | 27-Jan | Mon | NJH        | Nightmare on Elm Street                                      |
| 11      | 4    | 29-Jan | Wed | NJH        | A year in the life of a ground beetle                        |
| 12      | 4    | 31-Jan | Fri | NJH        | Chemical weaponry in beetles                                 |
|         | 5    | 03-Feb | Mon | All        | Midterm Exam 1   |
| 13      | 5    | 05-Feb | Wed | NM         | Buzzing through time: The life history of a honey bee.       |
| 14      | 5    | 07-Feb | Fri | JG         | World of pollination   |
| 15      | 6    | 10-Feb | Mon | NM         | Bees gone bad: Killer bees in the Americas                   |
| 16      | 6    | 12-Feb | Wed | KB         | Insect plant interactions/Insect herbivore co-evolution      |
| 17      | 6    | 14-Feb | Fri | JG         | Dark side of slavery and social parasitism in insects        |
|         | 7    | 17-Feb | Mon | No Lecture | Mid Term Break - Louis Riel Day                              |
|         | 7    | 19-Feb | Wed | No Lecture | Mid Term Break   |
|         | 7    | 21-Feb | Fri | No Lecture | Mid Term Break   |
| 18      | 8    | 24-Feb | Mon | AC         | Ants as farmers  |
| 19      | 8    | 26-Feb | Wed | AC         | The name's Beetle. Lady Beetle                               |
| 20      | 8    | 28-Feb | Fri | JG         | Fact and fiction of social wasps                             |
| 21      | 9    | 03-Mar | Mon | AC         | Aliens on Earth (Parasitoids)                                |
| 22      | 9    | 05-Mar | Wed | AC         | Insects that threaten our food supply                        |
| 23      | 9    | 07-Mar | Fri | AC         | Where are they coming from? (landscape ecology)              |
|         | 10   | 10-Mar | Mon | All        | Midterm Exam 2   |
| 24      | 10   | 12-Mar | Wed | KR         | Six-legged sex   |
| 25      | 10   | 14-Mar | Fri | KR         | The Middlemen: vector ecology                                |
| 26      | 11   | 17-Mar | Mon | KR         | Tick... tick... ticks!                                       |
| 27      | 11   | 19-Mar | Wed | TDG        | For the love of lice   |
| 28      | 11   | 21-Mar | Fri | KB         | Insect Invaders  |
| 29      | 12   | 24-Mar | Mon | KB         | Chinks in the chitin: Preserving insects and the web of life |
| 30      | 12   | 26-Mar | Wed | KB         | Is it getting hot in here? (Insects and Climate Change)      |
| 31      | 12   | 28-Mar | Fri | TDG        | What's in the water?   |
| 32      | 13   | 31-Mar | Mon | PAM        | Aphid life histories: complicated, short, brutal             |
| 33      | 13   | 02-Apr | Wed | TDG        | Insects in the courtroom                                     |
| 34      | 13   | 04-Apr | Fri | KR         | Insects in art and culture                                   |
| 35      | 14   | 07-Apr | Mon | KR         | Exoskeletons in your closet                                  |
| 36      | 14   | 09-Apr | Wed | JG         | Insects for fun and profit; overview of program              |