



## ONLINE DISTANCE EDUCATION COURSE FOR PROFESSIONAL DEVELOPMENT

### “Ranaviruses: Emerging Pathogens of Ectothermic Vertebrates”

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**Contributing Instructors:** Matthew J. Gray, Ph.D. (Professor, University of Tennessee; Director, Global Ranavirus Consortium [GRC]) will coordinate instruction with >18 additional scientists in the disciplines of veterinary medicine, microbiology, ecology, and mathematics contributing to instruction.

**Meeting Location:** Online via Zoom (course: <https://tennessee.zoom.us/j/8653850772>) (download Zoom at: <https://zoom.us/support/download>).

**Meeting Time:** Wednesdays, 15:05 – 18:05 hrs, León, Spain  
09:05 – 12:05 hrs, New York, USA

**NOTE:** Due to the challenges with instructing across multiple time zones, all lectures will be recorded in real time and available via an iTunes site.

**Course Duration:** 3 February – 20 April 2016 (twelve 3-hr meetings)

**Course Goal:** To increase the understanding of ranavirus-host interactions through a series of online lectures and activities led by ranavirus experts around the globe.

**Expected Outcomes:** Upon completion of the course, participants will have a thorough understanding of the historical and current context of ranavirus die-offs, ranavirus phylogenetics, ecology and pathology of ranaviruses, how ranaviruses replicate and evade the host immune system, diagnostic techniques used to detect ranaviruses, and how to design ranavirus studies.

**Required Text:** Ranaviruses: Lethal pathogens of ectothermic vertebrates  
(Springer eBook: <http://link.springer.com/book/10.1007/978-3-319-13755-1>)

**Journal Articles:** Occasionally journal articles will be assigned instead of or to supplement the required text, and will be provided on the course website.

**Academic Assessment:** Two take-home exams (one week completion time) over lecture material and required readings.

**Language:** This course will be instructed in English, including the exams.

**Enrollment:**

- (1) Open to all professionals and students.
- (2) Sign-up at GRC Website = <http://www.ranavirus.org>
- (3) Course fee = \$250 for GRC members, \$300 for non-members.
- (4) Suggested continuing education (CE) hours = 45 hours (36 hours class + 9 hours out-of-class activities). If approval for CE credits is required by an organization, it is the participant's responsibility to complete all necessary CE paperwork.
- (5) A certificate of completion will be provided by the GRC. A score of  $\geq 70\%$  (on 100% scale) must be earned to acknowledge successful completion.

**Tentative Topics and Schedule**

| Month    | Day      | Topics <sup>1</sup>   | Instructors <sup>2</sup>                 |
|----------|----------|---|--|
| February | 3        | Introduction to Course<br>How to Use Zoom<br>History of Ranaviruses<br>Current Status of Ranavirus Die-offs | Gray<br>Gray<br>Chinchar<br>Duffus       |
|          | 10       | Ranavirus Phylogeny & Taxonomy<br>Ranavirus Evolution<br>Captivity Induced Evolution                        | Waltzek<br>Storfer<br>Gray               |
|          | 17       | CMTV Outbreaks in Europe<br>SGIV in China<br>CGSV in China  | Price<br>Qin<br>Wu                       |
|          | 24       | EHNV and BIV in Australia<br>ATV in North America<br>FV3 in North America                                   | Ariel<br>Brunner<br>Lesbarreres          |
| March    | 2        | How Ranaviruses Replicate<br>Ranavirus Immune Evasion<br>Host Immune Responses                              | Jancovich<br>Robert<br>Grayfer           |
|          | 9        | Pathology in Amphibians<br>Pathology in Reptiles<br>Pathology in Fishes                                     | Miller                                   |
|          | 16<br>23 | Ecology & Epidemiology of<br>Ranaviruses  | Gray<br>Lesbarreres<br>Brunner           |
|          | 30       | Anthropogenic Stressors<br>Amphibian Farms and Ranavirus<br>Pathogen Pollution and Trade                    | Kerby<br>Mazzoni<br>Kolby                |
|          | April    | 6   | OPEN: Current Topics                     |
|          | 13       | Diagnostic Techniques: qPCR, IHC,<br>ELISA  | Kerby, Waltzek,<br>Balseiro,<br>Allender |
|          | 20       | Sampling: Design, Biosecurity,<br>Analyses  | Gray<br>Brunner                          |

<sup>1</sup>Exam 1 = 3 Feb – 9 Mar material (completion time = 9 – 16 Mar); Exam 2 = 16 Mar – 20 April material (completion time = 20 – 27 April).

## **<sup>2</sup>Current List of Contributing Instructors**

| Instructor        | Affiliation                             | Email                             |
|-------------------|---|-----------------------------------|
| Matthew Gray      | University of Tennessee                 | mgray11@utk.edu                   |
| Greg Chinchar     | University of Mississippi               | vchinchar@umc.edu                 |
| Amanda Duffus     | Gordon State College                    | aduffus@gordonstate.edu           |
| Thomas Waltzek    | University of Florida                   | tbwaltzek@ufl.edu                 |
| Andrew Storfer    | Washington State University             | astorfer@wsu.edu                  |
| Stephen Price     | University College London               | s.price@ucl.ac.uk                 |
| Qiwei Qin         | South China Sea Institute of Oceanology | qinqw@scsio.ac.cn                 |
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| Ellen Ariel       | James Cook University                   | ellen.ariel@jcu.edu.au            |
| Jesse Brunner     | Washington State University             | jesse.brunner@wsu.edu             |
| David Lesbarrères | Laurentian University                   | dlesbarreres@laurentian.ca        |
| James Jancovich   | California State University             | jjancovich@csusm.edu              |
| Jacques Robert    | University of Rochester                 | Jacques_Robert@URMC.Rochester.edu |
| Leon Grayfer      | University of Rochester                 | Leon_Grayfer@URMC.Rochester.edu   |
| Debra Miller      | University of Tennessee                 | dmille42@utk.edu                  |
| Jacob Kerby       | University of South Dakota              | Jacob.Kerby@usd.edu               |
| Rolando Mazzoni   | Federal University of Goiás             | rolo1001@gmail.com                |
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| Matthew Allender  | University of Illinois                  | mcallend@illinois.edu             |