



FIRE: THE FIRST-YEAR INNOVATION & RESEARCH EXPERIENCE

EVOLUTION OF EXAGGERATED TRAITS

FIRE266 – Evolution of Exaggerated Traits – Fall 2017

Instructor:	Dr. Ashley Nazario-Toole
Email:	anazario@umd.edu
Lab:	Biology Psychology Bldg. rm 2213
Lab hours:	Monday 11am-3:30pm & Tuesday – Friday, 9am-5pm
Office:	Biology Psychology Bldg. rm 2246
Phone	(301) 405-6949
Office Hours:	After class or by appointment
Communication	Course Canvas Website & Email

Course Description

FIRE266 is the capstone course of the First-Year Research & Innovation Experience (FIRE) program for students participating in the Evolution of Exaggerated Traits research stream.

This course will focus on the process of independent research, including collaboration with peers, communication of ideas, troubleshooting unexpected outcomes, and discipline-specific methodologies. Scheduled class meetings will focus on the discussion of primary literature, troubleshooting research issues, and continual review of individual and group research progress. The course requires students to commit 8 additional hours of independent research per week (6 hours in the laboratory and 2 hours off-site).

Evolution of Exaggerated Traits is a collaborative research engagement focusing on the genetic variation that underlies the development of a sexually dimorphic exaggerated trait. Our work will use molecular biology methods to study eukaryotic gene expression in a model organism. The implications of this research with respect to the expression and evolution of organismal traits represents one of the most enduring questions in biology.

Course Outcomes

This course focuses on the following outcomes in order to ensure your continued professional and academic success upon completion of the FIRE program:

1. You will develop an in-depth understanding of eukaryotic gene expression and sexual dimorphism, including comprehensive familiarity with the relevant literature.
2. You will develop skills in research project design, management, and completion.
3. You will develop mastery of various molecular biology techniques - including nucleic-acid purification, gel electrophoresis, and quantitative and qualitative polymerase chain reaction experiments.

4. You will develop the capacity to work independently and in collaboration with peers in a molecular research laboratory.
5. You will be able to interpret and disseminate research progress and results through oral and written communications.

Required Books & Reading

- Primary literature and research protocols will be posted to Canvas.

Course Policy

Please refer to the following website for all course policies:

<http://www.ugst.umd.edu/courserelatedpolicies.html>

Course Evaluation

Student learning will be assessed via **14** assignments throughout the semester. The instructor will provide complete details on how each individual assessment will be graded on a scale of 0 to 100. Additional information regarding the weight of each assignment is available below.

ASN	Description	% of grade
1	Research Preparation and Project Selection	12.5
2	Research Plan Presentation	5
3	Collection of scholarly papers relevant to the research question	5
4	Mele Paper Discussion Prep	2.5
5	Lab hours: accrue at least 39 hours by mid-semester	10
6	Draft introduction section of your report	5
7	Draft methods section of your report	5
8	Draft results section of your report	5
9	Draft abstract and conclusion sections of your report	5
10	Final draft of your research report	20
11	Lab hours: accrue at least 78 hours by the semester's end	10
12	Class Participation	2.5
13	Presentation: can be mid-semester (preliminary work) or at the end of the semester (final work)	10
14	FIRE survey	2.5

Final Letter Grade Determination

Final letter grades will be determined using the following guidelines:

+	97%	+	87%	+	77%	+	67%		
A	93%	B	83%	C	73%	D	63%	F	< 60%
-	90%	-	80%	-	70%	-	60%		

Course Schedule

This schedule is subject to change as the semester progresses.

Week		Class Activity	Assignment Due
1	8/31	Ice-breaker Introduction to Research Agenda and Report Form lab groups	
2	9/7	Summer Fellows Presentation ASN1- Discussion & Troubleshooting <i>Lab will be open Tuesday – Friday</i>	
3	9/14	Introduction to Literature Survey Presentations – ASN2	ASN1: Research Prep ASN2: Project Plan PowerPoint (Both due Thursday 9/14 by 2pm)
4	9/21	Jeopardy – Experiment & Terminology Review Team project discussions with RE	
5	9/28	Introduction to Analyzing qPCR data ASN3 Troubleshooting	ASN3: Literature Survey (due Thursday 9/28 by 5pm)
6	10/5	Mele et. al Paper Discussion and Activity	ASN4: Mele et al. Paper Prep (due Thursday 10/5 by 2pm)
7	10/12	An overview of the Research Report project Elements of an Introductory section	ASN5: Lab Hours I (due Friday 10/13 by 5pm)
8	10/19	ASN6 Troubleshooting Research Troubleshooting	ASN6: Research Report - Introduction (due Thursday 10/19 by 5pm)
9	10/26	Research troubleshooting ASN7 Troubleshooting	
10	11/2	Presentations (ASN13)	ASN7: Research Report – Methods (due Thursday 11/2 by 5pm)
11	11/9	Research troubleshooting Elements of a Results Section	
12	11/16	NO CLASS – ATTEND BIOSCIENCE DAY (Fill out worksheet)	ASN8: Research Report – Results (due Thursday 11/16 by 5pm)
13	11/23	NO CLASS <i>Thanksgiving weekend starts Wednesday Lab will be open Monday - Tuesday</i>	
14	11/30	Discuss ASN9, ASN10, ASN13	ASN9: Research Report – Abstract & Conclusion (due during at the beginning of class meeting during the week of 12/4/17)
15	12/7	ASN13 – Presentations Next steps: Writing about FIRE in your resume	ASN13: Presentation (due during at the beginning of class meeting during the week of 12/4/17)
End of Course			ASN10: Research Report – Final Draft (Monday 12/11 by 5pm) ASN11: Lab Hours II (due Monday 12/11 by 5pm) ASN12: Class Participation ASN14: FIRE Survey

