

## Face-to-Face

Pre- Lecture

iRAT

tRAT

Lecture

Application & Analysis

In-Class Time

## Online

Pre- Lecture

Due Wednesday

iRAT

Due Wednesday

Lecture

Due Sunday

tRAT

Due Sunday

Application & Analysis

Team meeting

**Pre-lecture Assignments (15-25min)** Same in both courses. One short video on natural and sexual selection, read learning objectives for the class, three chapter sections in the textbook (i.e. evolution of sex, sexual selection, and the evolution of mating systems).

**iRAT (3min)** Face-to-face: we used Clickers for questions at the beginning of the class. Online: we used Course Management System (Canvas) quiz to ask 5 multiple choice questions aligned with the learning objectives for the class.

**Short Lecture (15-25min)** We provided information on concepts and evolutionary processes on the evolution of sex. We used videos and case studies to provide context. Face-to-face: regular slideshow with Clicker questions. Online: the lecture is on Articulate Storyline 360 via Canvas. Students were asked to answer polls within the online lecture with instant feedback.

**tRAT (5min)** Same 5 multiple choice questions as in iRAT. Face-to-face: use Clickers to answer questions. Online: we use Articulate Storyline 360 via Course Management System (Canvas).

**Application & Analysis (15-25min)** Face-to-face: for this activity we used the role of sexual selection in shaping the long tail of widow-birds. Students answer questions using a worksheet. Online: same activity but students access it with an Interactive Storyline (Articulate Storyline 360 via Course Management System [Canvas]) describing the case scenario and a series of questions.