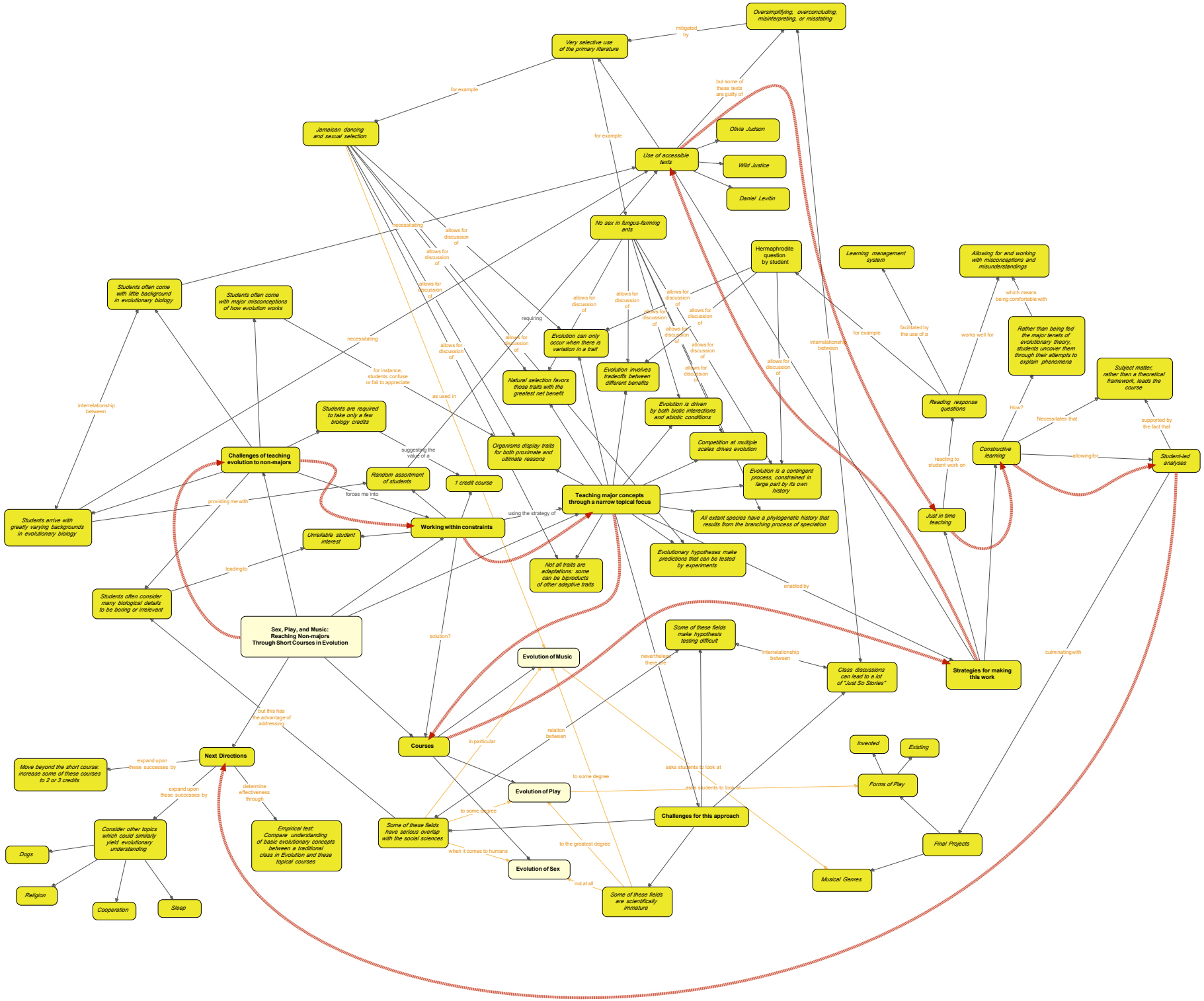
Oversimplifying, overconcluding, misinterpreting, or misstating
mitigated by
Very selective use of the primary literature
for example
Jamaican dancing and sexual selection
but some of these texts are guilty of
Olivia Judson
Wild Justice
Daniel Levitin
for example
Use of accessible texts
No sex in fungus-farming ants
Hermaphrodite question by student
Learning management system
Allowing for and working with misconceptions and misunderstandings
which means being comfortable with
Rather than being fed the major tenets of evolutionary theory, students uncover them through their attempts to explain phenomena
Subject matter, rather than a theoretical framework, leads the course
supported by the fact that
Necessitates that
How?
Reading response questions
facilitated by the use of a
works well for
for example
interrelationship between
Constructive learning
allowing for
Student-led analyses
reacting to student work on
Just in time teaching
necessitating
allows for discussion of
Students often come with little background in evolutionary biology
Students often come with major misconceptions of how evolution works
requiring
Evolution can only occur when there is variation in a trait
Evolution involves tradeoffs between different benefits
Natural selection favors those traits with the greatest net benefit
Evolution is driven by both biotic interactions and abiotic conditions
Competition at multiple scales drives evolution
Evolution is a contingent process, constrained in large part by its own history
All extant species have a phylogenetic history that results from the branching process of speciation
Organisms display traits for both proximate and ultimate reasons
Not all traits are adaptations: some can be biproducts of other adaptive traits
Evolutionary hypotheses make predictions that can be tested by experiments
for instance, students confuse or fail to appreciate
as used in
interrelationship between
Students are required to take only a few biology credits
suggesting the value of a
Challenges of teaching evolution to non-majors
Random assortment of students
1 credit course
forces me into
providing me with
Students arrive with greatly varying backgrounds in evolutionary biology
Teaching major concepts through a narrow topical focus
using the strategy of
Working within constraints
Unreliable student interest
leading to
Students often consider many biological details to be boring or irrelevant
enabled by
Sex, Play, and Music: Reaching Non-majors Through Short Courses in Evolution
solution?
Some of these fields make hypothesis testing difficult
nevertheless there are
interrelationship between
Class discussions can lead to a lot of "Just So Stories"
Strategies for making this work
culminating with
Evolution of Music
but this has the advantage of addressing
Courses
in particular
relation between
Next Directions
expand upon these successes by
Move beyond the short course: increase some of these courses to 2 or 3 credits
expand upon these successes by
determine effectiveness through
Empirical test: Compare understanding of basic evolutionary concepts between a traditional class in Evolution and these topical courses
Consider other topics which could similarly yield evolutionary understanding
Dogs
Religion
Cooperation
Sleep
Evolution of Play
to some degree
asks students to look at
asks students to look at
Invented
Existing
Forms of Play
Challenges for this approach
Some of these fields have serious overlap with the social sciences
to some degree
when it comes to humans
Evolution of Sex
to the greatest degree
not at all
Some of these fields are scientifically immature
Final Projects
Musical Genres