

BICH 485-507

Community Assessment of Community Annotation with Ontologies (CACAO)

Prerequisites

There are no specific course prerequisites, but you will need to be an active learner, undaunted by the challenge of digging for information and unafraid to ask questions when you get stuck.

Over-Reaching CACAO Learning Objective:

- students will gain an understanding of where our knowledge of gene products comes from and what techniques scientists used to characterize them.

CACAO Course Learning Objectives - Upon completion of this course, the student should be able to:

1. critically analyze scientific papers and identify experimental evidence for functional annotations.
2. seek information from online resources and add annotations to GONUTS.
3. formulate annotations using GO terminology while working effectively in a group.
4. evaluate peer-contributed annotations, construct challenges and prepare appropriate defenses.

Instructor Information

Dr. Jim Hu

Office: Bio/Bio 443A
Phone: 979-862-4054
Email: jim.hu.biobio@gmail.com
Office Hours: By appointment

Dr. Brenley McIntosh

Office: Bio/Bio 443
Phone: 979-862-4055
Email: brenleymcintosh@gmail.com
Office Hours: By appointment

Grading Policies

Letter graded or pass/fail. Attendance is mandatory.

Grades will be based on:

Attendance
Participation in group work
Annotations
Challenges

1. The course will be graded on a curve with a median letter grade being somewhere in the B's as indicated in the rubrics below.
2. The synthesis of annotations and challenges is likely to be challenging.
3. There will be no opportunity to earn extra credit by doing extra work.
4. Points distribution:

Self Assessment	25
Peer Assessment	100
Coaches Assessment	75
Attendance	20
Annotations	100
Challenges	100
Total	420

Aggie Honor Code:

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information please visit: www.tamu.edu/aggiehonor/

The Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services in Cain Hall Rm. B118, 845-1637.

Copyright Policy

All materials used in this class are copyrighted. Therefore, you do not have the right to copy class materials unless permission is expressly granted in writing. These materials include but are not limited to syllabi, in-class materials, and primary literature.

Course Calendar

Week of (2010)	Main Topic(s)
Sept 6	<ul style="list-style-type: none"> ● intro to competition format ● Gene Ontology & evidence codes ● using GONUTS website ● example #1
Sept 13	<ul style="list-style-type: none"> ● finding valid papers ● examples #2 & #3 ● Assignment of groups
Sept 20	Annotation Round #1
Sept 27	Challenge Round #1

Oct 4	Annotation Round #2
Oct 11	Challenge Round #2
Oct 18	Annotation Round #3
Oct 25	Challenge Round #3
Nov 1	Annotation Round #4
Nov 8	Challenge Round #4
Nov 15	Final Challenges & Wrap Up

Competition Guidelines

1) Completeness of the annotation

- a) A fully synthesized annotation includes all fields with required/optional information and a record of the supporting evidence
 - i) All annotations must at the very least include a GO term, evidence term, reference and a brief description of the evidence in the notes field.
 - ii) Some annotations may also include a qualifier term.
 - iii) The use of certain evidence codes will require the team to enter additional data into the with/from field.
 - iv) All information must be properly formatted for an annotation to be complete and any annotation must be clearly and fully defended in case of a challenge. The team responsible for creating the annotation will be given an opportunity to defend the annotation during the challenge period.
 - v) Full points for the annotation will be awarded if rubrics 2 & 3 are fulfilled.
- b) An incomplete annotation includes any annotation that is missing one or more required fields of information or any information is in the incorrect format.
 - i) Missing or incomplete information refers to both required or additional information.
 - ii) This will primarily be judged by peer review during the competition by the use of challenges.
 - iii) Additionally, expert curators/judges will review the annotations and will have the final decision on completeness.
 - iv) Zero points for the annotation.

2) Accuracy of the annotation

- a) All content included in the annotation must be unambiguously accurate.
 - i) This includes ensuring the GO term selected is the most appropriate for the evidence cited, the evidence term is appropriate for the methods used, the reference chosen must include the actual data (not a reference to another paper), the experiment described provides the evidence for the chosen GO term, the appropriate partner(s) is(are) included in the with/from field (if necessary).
 - ii) Some annotations may also include a qualifier term.
 - iii) The use of certain evidence codes will require the team to enter additional data into the with/from field.

- iv) If an annotation is challenged on the basis of accuracy, the team responsible for creating the annotation will be given the opportunity to defend the annotation during the challenge period. The accuracy of the annotation must be sufficiently justified upon a challenge.
 - v) Full points for the annotation will be awarded if rubrics 2 & 3 are fulfilled.
 - b) There are one or more errors in the content of the annotation.
 - i) This might include selection of a GO term, evidence code or description that is provided in the notes field is not appropriate for the experimental evidence, etc.
 - ii) Expert curators/judges will review the annotations and will have the final decision on accuracy.
 - iii) Zero points for the annotation.
- 3) Defense of a challenge of an annotation constructed by your team
 - a) Successful defense of your annotation.
 - i) Your team is able to present and defend the description of the evidence and logic for all components of the annotation and NO changes are made to the annotation as a result.
 - ii) Full points remain with your team for this annotation.
 - b) Lose the defense of your annotation.
 - i) Your team can retain half of the points for an annotation if the challenging team does not suggest the proper correction.
 - ii) Your team will lose all points for an annotation, which are then awarded to the challenging team, if the judges agree with the challenge and the correction.
 - iii) Expert curators/judges will review the annotations and will have the final decision on challenges.
- 4) Challenge of an annotation contributed by another team
 - a) Successful challenge of an opponent's annotation
 - i) The challenge must be on an annotation contributed by another team during this inning of the competition.
 - ii) Your team can only challenge annotations by other teams during the challenge/defense session immediately following the inning. Your team may only challenge annotations from any of the innings during the final challenge session.
 - iii) To be awarded all of the points for an annotation, your team must present a valid challenge and propose an accurate correction.
 - b) Lose the challenge of an opponent's annotation
 - i) There is no penalty for challenging and losing a challenge (no correction is required to the annotation).
 - ii) If you challenge an annotation, which is inaccurate or incomplete (as deemed by the expert curators/judges, in cases of dispute), the other team will lose half of their points and your team will be awarded those points for the annotation.
 - iii) To be awarded full points for the annotation (and to cause the other team to lose these points from their total score), you must rightly challenge an annotation AND suggest the correction.

Rubrics for CCAO Course:

Rubric #1: Group Work

A	B	C	D	F
Thorough understanding	Good understanding	Satisfactory	Needs Improvement	Unacceptable
<p>i. Consistently and actively works towards group goals.</p> <p>ii. Is sensitive to the feelings and learning needs of all group members.</p> <p>iii. Willingly accepts and fulfills individual role within the group.</p> <p>iv. Consistently and actively contributes knowledge, opinions and skills.</p> <p>v. Values the knowledge, opinions and skills of all group members and encourages their contribution.</p> <p>vi. Helps group identify necessary changes and encourages group action for change.</p>	<p>i. Works toward group goals without prompting.</p> <p>ii. Accepts and fulfills individual role within the group.</p> <p>iii. Contributes knowledge, opinions and skills without prompting.</p> <p>iv. Shows sensitivity to the feelings of others.</p> <p>v. Willingly participates in needed changes.</p>	<p>i. Works toward group goals with occasional prompting.</p> <p>ii. Contributes to the group with occasional prompting.</p> <p>iii. Shows sensitivity to the feelings of others.</p> <p>iv. Participates in needed changes, with occasional prompting.</p>	<p>i. Limited understanding</p> <p>ii. Works toward group goals only when prompted.</p> <p>iii. Contributes to the group only when prompted.</p> <p>iv. Needs occasional reminders to be sensitive to the feelings of others.</p> <p>v. Participates in needed changes when prompted and encouraged.</p>	<p>i. did not participate in group work</p>

Rubric #2: Mechanics, Documentation & Quality of Annotations

A	B	C	D	F

Excellent	Very Good	Satisfactory	Needs Improvement	Unacceptable
<p>i. Annotations are formatted correctly and are complete.</p> <p>ii. Annotations are made using the first occurrence of evidence.</p> <p>iii. Short descriptions show clear understanding of experimental method/ evidence.</p> <p>iv. GO term selected is the most appropriate for the evidence cited, the evidence term is appropriate for the methods used, the reference chosen includes the actual data (not a reference to another paper), the experiment described provides the evidence for the chosen GO term, the appropriate partner(s) is(are) included in the with/ from field (if necessary).</p>	<p>i. Annotations are formatted correctly and are complete.</p> <p>ii. Short descriptions show clear understanding of experimental method/ evidence.</p> <p>iii. GO term selected is not the most appropriate, but is only a single (parent or child) relationship away from the most appropriate term.</p> <p>iv. Upon challenges, an annotation is defended using clear logic, but explanation lacks some detail(s).</p>	<p>i. Annotations are formatted correctly and are complete.</p> <p>ii. Simple explanation of evidence given.</p> <p>iii. GO term selected is not the most appropriate and is more than a single parent/child relationship away from the most appropriate term.</p> <p>iv. Upon challenges, an annotation is defended, but explanation lacks important details.</p>	<p>i. Annotations are incorrectly formatted, incomplete or inaccurate.</p> <p>ii. Annotations are made using the wrong evidence.</p> <p>iii. GO term selected is not relevant to the evidence described.</p> <p>iv. Upon challenges, an annotation is not well defended due to a lack of understanding of evidence or annotation logic.</p>	<p>i. Annotations were not added to GONUTS.</p> <p>ii. Upon challenges, an annotation is not defended.</p>

v. Upon challenges, annotation is well defended using clear logic and appropriate explanations of evidence.				
---	--	--	--	--

Rubric #3: Knowledge Integration & Application Through Challenges

A	B	C	D	F
Excellent	Very Good	Satisfactory	Needs Improvement	Unacceptable
<p>i. challenge was well-organized, comprehensive and persuasive.</p> <p>ii. demonstrates full knowledge of the annotation and evidence.</p> <p>iii. presents a logical explanation for the challenge</p> <p>iv. presents an easy-to-follow argument that is logical and adequately detailed</p> <p>v. presents an excellent (see above rubric) alternative annotation.</p>	<p>i. challenge is well-organized.</p> <p>ii. presents most of the arguments against the annotation but lacks some details.</p> <p>iii. presents a very good (see above rubric) alternative annotation.</p>	<p>i. challenge is appropriate.</p> <p>ii. features of the argument lack important detail or does not present sufficient logic.</p> <p>iii. presents a satisfactory (see above rubric) alternative annotation.</p>	<p>i. challenge is disorganized or illogical.</p> <p>ii. presents basic background to the annotation, but does not adequately describe the problem to be solved.</p> <p>iii. presents a needs improvement (see above rubric) alternative annotation.</p>	<p>i. challenge is vague, confusing or obviously inappropriate.</p> <p>ii. argument is poorly contrived or neglects obvious problems with the annotation.</p> <p>iii. does not present an alternative annotation.</p>