GUIDELINES FOR *APBI 497 (2-6)*
DIRECTED STUDIES

This course provides a means for individual senior students to undertake customized projects designed to provide an opportunity for students to develop and strengthen their research skills and to accommodate special research interests that cannot be met through other APBI courses. In special cases, this course can be used to fulfill the specialization electives when approved by the appropriate undergraduate advisor. Admission to APBI 497 is arranged through the **undergraduate program advisor** for the relevant major, and must be recommended by the faculty member who will be supervising the work that the student is to undertake. Students interested in APBI 497 should contact the undergraduate advisor for their major and the individual faculty member(s) with whom they are interested in conducting a project. Opportunities for conducting projects are limited.

The work plan is arranged and agreed to by the student and the faculty member and should be set out in writing with a copy to the student, the faculty member, and the undergraduate advisor. The work typically will consist of a definable project requiring literature and/or laboratory or field research and a written report. Target deadlines, established within two weeks of the start of the course, should be set for the completion of various phases of the project to ensure timely completion. A brief progress report (1-2 pages) is expected from the student when approximately half of the work has been completed.

Students will be expected to spend approximately 40 hours of work per credit (e.g. a 3-credit directed studies course would require approximately 120 hours). A regular schedule of consultations should be pre-arranged between the supervisor and the student in order to monitor and discuss progress and time spent by the student on the project. The meeting time should form a regular entry on the timetables of both the student and the supervisor.

If the project is to be conducted totally, or in part, at a location other than UBC, the supervising faculty member will make appropriate arrangements for regular monitoring of progress and time. This might entail appointment of an on-site co-supervisor.

If the project to be conducted is associated with a summer or part-time, paid or volunteer position held by the student, care must be taken to ensure that any hours of work on the directed studies project are over and above those required by the related position. The supervisor must be satisfied that this requirement has been met. Normally, a minimum of 50% of the work required for the course must be conducted during the session in which the student is enrolled in the course. Exception to this requirement may be requested in advance where its application would result in a course overload, unnecessary delay in time to graduation, or the imposition of extra fees.

It is expected that the thesis will be completed within the academic year when it is initiated. The maximum period allowed for completion is 12 months, according to the University of British Columbia calendar, as noted below.

> *If a student in a baccalaureate program who receives a "T" standing in a graduating essay or other course approved by the faculty completes the course within 12 months of the end of the term in which the student first registered for the course the "T" standing will be replaced by the grade assigned. If the course is not completed within 12 months the "T" standing will be replaced by a grade of zero (or "F" standing in a Pass/Fail course) (From http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,42,96,0).*

Deadlines for the course
The following deadlines are suggested for students enrolled in a 6-credit / 2-term Directed Study. The student and their supervisor must discuss and come to an agreement on deadlines at the start of the project.

Milestones	**May – Aug Schedule**	**Sept – April Schedule**
Submission of project title and name of supervisor to undergraduate advisor	May 1	September 15
Project proposal	May 15	October 1
Project progress report	June 30	January 15
Research completed	August 1	February 15
Submission of report draft to supervisor	August 14	March 15
Submission of final report copy to supervisor	August 21	April 7

For students enrolled in a 3-credit directed study or for 6-credits/1-term directed study, the following deadlines are suggested:

Milestones	**Sept - Dec Schedule**	**Jan– April Schedule**
Submission of project title and name of supervisor to undergraduate advisor	September 7	January 7
Project proposal	September 15	January 15
Project progress report	October 30	February 28
Research completed	November 15	March 15
Submission of report draft to supervisor	November 28	March 30
Submission of final report copy to supervisor	December 5	April 7

Responsibilities of the supervisor

- Selection of appropriate project in conjunction with the student
- Provision of suitable laboratory supplies and equipment to perform the work
- Providing guidance on experimental design, data analysis, and presentation of results
- Scheduling of regular meetings with the student
- Giving feedback on the report draft in a timely manner
- Arranging for a second evaluator and evaluating the student lab work and report write-up
- Note: the role of the supervisor in the written report should be restricted to:

1. provide general recommendations regarding structure, development, and progression of ideas;
2. provide advice on the general format of the report, according to the guidelines, and the use of correct grammar, spelling, and sentence structure.

The involvement of the supervisor should normally be limited to the first draft of the report.

Responsibilities of the student

- Make arrangements well in advance to work under the guidance of a faculty member as a project supervisor.
- *Strict* adherence to deadlines and guidelines for the course, as stated in this document and arranged with the supervisor
- Submit copies of the project proposal to the project supervisor by the agreed due date. The project proposal (2- 4 pages) will consist of the following information:

1. The aim or hypothesis of the project.
2. The significance of the project (why is it interesting or important), supported by relevant background information and literature
3. The approach/procedures to be used ..
4. The potential problems or difficulties that might be encountered in the project.
5. The time-line for the work (the date when specific steps or milestones will be completed, including the date of submission of the written report).

The project proposal must be approved by the supervisor within two weeks of the start of the term or the student will be removed from the course.

- Allocate appropriate time to this course over the term(s)
- Submit a brief (one or two pages) progress report to the project supervisor by the due date. This report should state:

1. Major accomplishments in the work to that time.
2. Major problems in the project.
3. Significant changes in the aim or approach for the project.
4. Remaining work to be completed before writing up the final project report.

- Submit two bound copies of the final report for evaluation at the end of the term.

For purposes of determining a grade for a directed studies course, evaluation will be conducted by the supervisor and at least one other faculty member selected by the supervisor or the undergraduate advisor. Where feasible and necessary, a common standing review committee will be struck. Evaluation will be based on the written report and the organization and conduct of the project work.

One suggestion for an evaluation scheme for a project involving both literature and laboratory or field research and a final report is given below. This scheme may be modified by the supervisor, and should be distributed to the student at the beginning of the project.

Evaluation Scheme

Lab Work *(50% weighting of final mark)*
Initiative (20%)
Technique (20%)
Comprehension (20%)
Organization, work habits, attention to safety/proper protocols (20%)
Dedication and Perseverance (20%)

Final Report *(50% weighting of final mark)*
Abstract (5%)
- A concise summary of the report
- No abbreviations should be used

Introduction, Statement of Objectives (5%)
- Introduction of the research topic
  - Clear outline of the hypothesis, rationale, objective and specific aims of the project

Literature Review (15%)
- Showing depth and scope of the pertinent literature

Materials and Methods (15%)
- Concise and explicit description of the experimental methods used
  - Detailed description of newly developed methods
- Citation of appropriate references for methods not performed by the student themselves
- Source of materials and chemicals used
- Methods used for data analysis, if appropriate

Results (10%)
Presentation of figures, tables, appendices where applicable, in a manner that is commonly used in research publications for the area.
- Inclusion of statistical significance of data
- Presentation of data solely generated by the student during the project

Discussion (20%)
- Demonstrating critical analysis of results and comprehension of subject area

Conclusions (5%)
References (5%)
- Citation of all literature referred to in the report
- Consistent and appropriate format used

Clarity, grammar (sentence structure, spelling), organization (20%)

APBI 499 Grading Rubric for Oral Presentation

Category/*Rating*	*Poor (0-3)*	*Acceptable (3.5)*	*Good (4)*	*Excellent (5)*
KNOWLEDGE & CONTENT				
Adequacy of introduction	Introduction and background information was unfocussed; audience did not know what the objectives of the presentation were.	Audience had an idea of the focus and objectives of the presentation, but some of the background was either missing or irrelevant.	Captured audience attention; presented adequate background; objectives were clear by the end of the introduction.	Captured audience attention; presented relevant background, quickly established a focus, and clearly stated objectives of the presentation.
Explanation of experimental approach and methodology	Presented procedures used without demonstrating why those methods were chosen or an understanding of the principles.	Presented overview of experimental approach, and described methods to be used.	Presented details of the chosen experimental approach; accurate description of main principles and key steps of methods.	Gave clear rationale and details for the chosen experimental approach; accurate description of main principles and key steps of methods.
Explanation of results	Data was not presented clearly, and/or incorrect explanations of the results were given.	Presented the data obtained from each of the methods; made a good attempt to explain the results.	Presented the data obtained from each of the methods clearly; explained the meaning of each of these results.	Presented the data obtained from each of the methods clearly; provided meaningful interpretation and inter-connections of results
Clarity & accuracy of discussion; Critical judgment exercised	Did not show any understanding of the significance and limitations of the research findings	Gave a good effort to explain the significance and limitations of the research findings	Demonstrated good understanding of the significance and limitations of the research findings	Articulated critical judgment and good understanding of the significance and limitations of the research findings
Appropriateness of conclusion and take-home message	Ended the presentation abruptly; or a conclusion was presented that did not reflect the main points of the presentation.	Summarized main points of the presentation; audience left with a take-home message.	Summarized main points of the presentation; audience left with a clear take-home message; presentation concluded logically.	Summarized main points in an integrated fashion; audience left with a clear take-home message; presentation concluded logically.
Response to questions	Lacked accurate or relevant answers to most of the questions asked.	Made strong effort to answer questions, and handled most questions knowledgeably, but with some hesitation.	Handled most questions knowledgeably and with confidence.	Handled questions knowledgeably and with confidence; demonstrated greater depth of knowledge than what was presented.

ORGANIZATION & DELIVERY

Flow of information	Presentation of information is dis-connected; audience found it difficult to understand the main points and to follow the presentation.	Logical organization of information; some gaps or pauses in the transitions between sub-topics of group members.	Smooth and logical organization of information; transitions between sub-topics and group members were mostly effective.	Smooth and logical organization of information; effective bridging between sub-topics and among group members; easy to follow.
Effectiveness of delivery	Reading extensively from notes or the monitor; no eye contact with audience; low volume &/or speaking in a monotone	Spoke in a clear voice at an acceptable pace; occasionally relying on notes or the monitor; made some eye contact with the audience.	Spoke clearly, with good volume and intonation and at a good pace; established good eye contact with the audience	Spoke clearly and confidently, with good volume and intonation and at a good pace; excellent eye contact with the audience
Enthusiasm, professionalism	Apathetic presentation of information; distracting gestures, inappropriate demeanor and/or frequent use of slang or colloquialism	Demonstrated interest for the topic. Occasional distracting gestures or inappropriate choice of words.	Demonstrated enthusiasm for the topic; conveyed professionalism in language and demeanor.	Demonstrated a passion for the topic and instilled interest in the audience; conveyed professionalism in language and demeanor.
Use of visual aids	Most visual aids were too "busy", &/or had text with too small font size or verbatim to speaker's presentation.	Visual aids were used to convey information to the audience. Some slides may have been difficult to understand or see clearly.	Visual aids were attractive and effectively used to clearly convey information to the audience.	A variety of visual aids was used to capture the attention of the audience and enhance understanding of the presented information.
Adherence to time limit	Presentation was longer than 18 minutes or shorter than 12 minutes.	Kept to within three minutes of the prescribed 15 minute time limit	Kept to within two minutes of the prescribed 15 minute time limit.	Kept to within a minute of the prescribed 15 minute time limit!

The following rubric can be used as a guide for expectations for the report.

Marking Rubric

Score	Research: thoroughness of research, adequacy of sources	Analysis: comprehension, originality , critical thinking	Presentation: structure, writing style, organization, clarity and carefully prepared references
10	exceeds quality expected for undergrad essay	very original ideas or interpretation, critical analysis that is well defended and plausible, combined with flawless comprehension	impeccable essay
9	very thorough research of relevant literature including primary scientific/scholarly literature where available.	high level of originality and critical thinking, combined with flawless comprehension	excellent essay in terms of structure, writing style and reference list
8	thorough research of appropriate sources	solid comprehension without much original analysis or interpretation	very good quality, perhaps with some flaws of grammar, spelling, paragraph structure, or inconsistency in referencing that do not affect clarity
7	adequate research of appropriate sources	reasonable comprehension, tendency to report rather than analyze different views	reasonable quality of presentation with some flaws of grammar, spelling, paragraph structure, or inconsistency in referencing, that have some effect on clarity
5-6	Just acceptable level of research of appropriate sources; reliance on secondary sources and websites rather than primary literature	Just acceptable level of comprehension	Just acceptable presentation which needs substantial improvement in areas such as structure, writing, grammar, such that clarity is affected significantly

University of British Columbia

Faculty of Land and Food Systems
Directed Studies
APBI 497(A-E)
Registration Form

_____
Date Registered

Initials: _____
APBI Program Coordinator

Student Name:		**UBC Student #:**	

Select a Term	
	Sept-Dec (Winter Session, Term 1)
	Jan-Apr (Winter Session, Term 2)
	Sept – Apr (Winter Session, Terms 1 & 2)
	May – Aug (Summer Session, Terms 1 & 2)

Start Date *(yy/mm/dd)*		Expected End Date*(yy/mm/dd)*		**Credit Level (circle one)** **A(2) B(3) C(4) D(5) E(6)**

Select all applicable boxes:			
□ ***approved institution Canada***	□ ***approved institution international***	□ ***UBC Farm***	□ ***Other***

Project site:	
Academic supervisor:	**Site supervisor: (If applicable)**

Project Proposal Summary
(Include information on learning objectives, work involved, and assessment criteria. Attach extra sheet if necessary)

Learning objectives:

Work involved:

Outcomes/Output/Assessment criteria: Mark for this directed studies will be based on:

_____	_____	_____
Student Signature	Academic supervisor signature	Site supervisor signature
_____	_____	_____
Date	Date	Date

Rev. July 2016