

## ACB Graduate Student Handbook Version 3.0



*18January2012*

### ***Welcome to Anatomy and Cell Biology***

Over the next several years you will be working closely with faculty and students associated with the ACB graduate program. During the course of your studies, there are requirements that you must complete in order to successfully graduate from the program. The purpose of the handbook is to provide information about each of the tracks and clearly outline all of the program requirements. Since there are several tracks in the ACB graduate program (i.e. MSc Research, MSc Clinical Anatomy, PhD Research, Direct-entry PhD Research) requirements are outlined individually for each track. It is important that you understand all of the requirements since you will be held to them. Seek assistance from the Associate Chair for Graduate Studies or a member of the Graduate Affairs Committee (GAC) if you have any questions or concerns.



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## MSc Research Stream



### ***MSc Requirements: Research Stream***

#### **New Student Orientation**

All new MSc students are required to attend the ACB Student Orientation. Orientation begins 9:00am the Tuesday following Labour Day and runs for Tuesday and Wednesday. During Orientation students will:

- Receive orientation/information sessions from the Graduate Chair and Graduate Program Assistant. Additional information will also be provided by:
  - The Society of Graduate Students (SOGS)
  - The Teaching Assistant (TA) Union
  - The School of Graduate and Postdoctoral Studies (SGPS)
  - Occupational Health and Safety
  - UWO Ethics Office
  - ACB Graduate Course Co-ordinators
  - Animal Care and Veterinary Services (ACVS)
- Identify and enrol in all necessary laboratory safety and ACVS courses.
- Meet with members of the graduate affairs committee (GAC) and supervisor, to:
  - Select courses
  - Select members of the supervisory committee
  - Sign (if applicable) TA contracts
  - Provide emergency contact information
- Meeting(s) with course co-ordinators should occur in the first week if selected as a TA.

Students starting in January or May will have a less formal orientation.

#### **Program Requirements**

- Attend the annual ACB research day. Participate in the ACB research day once sufficient data has been collected to permit a presentation. Note: Students may show work previously presented at another venue.
- Attend the Annual ACB Murray Barr lecture.
- Attend a local research day. Attend and participate (talk or poster) in a local research day once sufficient data has been collected to permit a presentation. Examples of local meetings include Moffat Research Day, SONA, Western Research Forum, Oncology Research day and Psychiatry Research day. Note: Students may show work previously presented at another venue.
- Attend the [\*Friday ACB seminar series\*](#) plus select departmental seminars and PhD defense talks (80% attendance in each term is mandatory).
- Attend the 9520/9620 weekly seminars.
- Apply for eligible scholarships.

### Degree Requirements

**Timeline:** Students may commence their MSc degree in January, May or September although most students begin in September; MSc students are expected to complete their degree within 24 months (2 years) of their start time. Schulich, SGPS and most scholarship programs will not financially support students enrolled in an MSc program past 24 months. Mentors may cease providing stipend support for students after 24 months of enrolment with 90 days written notice. If circumstances arise that require a student to remain in the MSc program longer than 24 months, the student must seek permission from the GAC to remain enrolled.

**Courses:** ANATCELL9520 plus either ANATCELL9555 (Advanced Topics in Cell Biology) or ANATCELL9550 (Advanced Topics in Integrative Neuroscience) are required course offerings for MSc students. Students may enrol in additional courses offered by ACB or other programs at the discretion of the supervisory committee or as a condition of acceptance of a scholarship/award.

**Supervisory Committees:** All MSc research students must have a supervisory committee. Members of the supervisory committee have the expertise to help students successfully navigate their degrees. Members of the supervisory committee should be viewed as a valuable resource and consulted often both informally and during supervisory committee meetings. The supervisory committee will be composed of the supervisor(s), a representative from the GAC (appointed by the GAC) and at least one additional mentor with expertise in aspects of the proposed research project. Mentors can be selected from ACB or other programs/departments as long as the potential mentor is accredited and in good standing with SGPS. Mentor(s) must be selected in consultation with the student and are subject to approval by the GAC.

**Supervisory Committee Meetings Schedule:** Students should always feel free to ask for guidance or advice from members of the graduate program and any member of the supervisory committee. However, at various stages during the course of the program, formal meetings are required to assess progress and provide constructive feedback that will allow the student to continue to develop towards completion of the degree. Required meetings are indicated below:  
**Meeting 1** – Before December 1<sup>st</sup> (Year 1) – Research proposal required.  
**Meeting 2** – Before June 1<sup>st</sup> (Year 1) – Progress report required.  
**Meeting 3** – Before December 1<sup>st</sup> (Year 2) – Progress report required.  
**Meeting 4** – Before June 1<sup>st</sup> (Year 2) for degree completion/May 1<sup>st</sup> for transition to the PhD program (Year 2) – Progress report required.

Please see section on [Research Proposals and Progress Reports](#) for additional instruction. Additional meetings may be held at the request of the student, supervisor or the supervisory committee. Typically, students will seek official permission to write their thesis or transition to the PhD program during **Meeting 4\***.

Note: Schedule is based on September start-time, adjust appropriately for January or May start times.

### Responsibilities of Supervisory Committee Participants

*Mentor's Responsibility* - Make initial contact with potential supervisory committee members to ask if they are willing to serve. Normally this will be done soon after the student has started in the program but changes in supervisory committee composition may occur at different times during the degree. Supervisors are also responsible for helping to ensure that supervisory committee meetings occur on time.

*Student's Responsibility* - The student is responsible for scheduling the supervisory committee meetings and ensuring they are completed on time as per the guidelines. The student is also responsible for supplying the Supervisory committee Evaluation Form with page one completed.

Bring the [Research Proposal Form](#) to the first meeting.

Bring the [Progress Report Form](#) to the second and subsequent meetings.

Bring the [Final Report Form](#) requesting permission to write the thesis to your final meeting.

Following completion of each meeting, the student is responsible for providing copies of the completed and signed evaluation forms to all members of the supervisory committee. The original form, must be given to the Graduate Program Assistant in the ACB departmental office (MSB443) along with an electronic or printed copy of the Research Proposal/Progress Report. A Supervisory Committee Evaluation form must be completed for all meetings except for the new student orientation meeting in September (see [New Student Orientation](#) -page 7).

*GAC Responsibility* - A GAC member will be assigned to all student supervisory committees. A member of the GAC can act as both a GAC representative and scientific advisor if expertise is appropriate. The GAC member, in consultation with the other members of the supervisory committee, will complete the supervisory committee report form. The GAC member is also responsible for explaining the results of the report to the student and answering any question the student might have concerning the report. At their discretion, a GAC member can call for additional committee meetings should they believe more frequent or additional meetings are warranted.

### Progress Expectations for Year 1

1. Complete required and optional courses with a minimum 80% standing in each offering by the end of year 1.
2. Submit an abstract (first or co-author) to a provincial/national/international conference.
3. During the supervisory committee meetings:
  - o Demonstrate an understanding of current literature relevant to the research of the student.
  - o Demonstrate an understanding of the research questions related to the candidate's project.
  - o Demonstrate an understanding of- and proficiency with- the tools used to address the research question.

**Note:** The third requirement is assessed by the supervisory committee and documented in the student progress reports.

### Progress Expectations for Year 2

1. Complete any additional optional course offerings with a minimum 80% standing in each offering.
2. Write, submit and successfully defend a research thesis. For a student to graduate there must be sufficient novel research data for the preparation of at least one manuscript to be submitted to a peer-reviewed journal.
3. During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem.
  - Demonstrate an ability to develop the research project beyond the scope initially provided by the mentor.

**Note:** The third requirement is assessed by the supervisory committee and documented in the student progress reports.

### MSc to PhD Transition

Transfer from the MSc to the PhD degree will take place before the end of the 5<sup>th</sup> term of MSc enrolment. For most students this will mean prior to the end of April during the second year of the MSc. Students will typically seek permission to transfer from the MSc to the PhD program during the regularly scheduled advisory meeting (*meeting 4*) although a special meeting can be arranged if necessary. The composition of the advisory committee for this meeting will be the same as the previous advisory meetings, except one additional member of the GAC will be present.

In preparation for the meeting, the student should prepare the typical progress report (see [Research Proposals and Progress Reports](#)) summarizing the result obtained thus far, but also include the overall hypothesis, rationale and individual aims for the PhD project. To successfully transfer from the MSc to the PhD program, a student must demonstrate to the committee that all of the MSc requirements outlined in the student handbook have been fulfilled with the exception of writing and defending the thesis. The student must also explain how the project will be expanded beyond the limitations of an MSc and demonstrate a suitable understanding of the proposed project. Finally, there must be enthusiasm and commitment for the transfer on the part of the student, supervisor and committee.

## PhD Research Stream



### *PhD Requirements (Excluding Direct-Entry and MD/PhD)*

#### **New Student Orientation**

All PhD students new to ACB and starting the program in September are required to attend the ACB Student Orientation. Orientation begins 9:00am the Tuesday following Labour Day and runs for Tuesday and Wednesday. During orientation students will:

- Receive orientation/information sessions from the Graduate Chair and Graduate Program Assistant. Additional information will also be provided by:
  - The Society of Graduate Students (SOGS)
  - The Teaching Assistant (TA) Union
  - The School of Graduate and Postdoctoral Studies (SGPS)
  - Occupational Health and Safety
  - UWO Ethics Office
  - ACB Graduate Course Co-ordinators
  - Animal Care and Veterinary Services (ACVS)
- Identify and enrol in all necessary laboratory safety and ACVS courses.
- Meet with members of the graduate affairs committee (GAC), along with the supervisor, to:
  - Select courses
  - Select members of the supervisory committee
  - Sign (if applicable) TA contracts
  - Provide emergency contact information
- Meeting(s) with course co-ordinators should occur in the first week if selected as a TA.

Students starting in January or May will have a less formal orientation.

#### **Program Requirements**

- Attend the annual ACB research day. Participate in the ACB research day once sufficient data has been collected to permit a presentation. Note: Students may show work previously presented at another venue.
- Attend the Annual ACB Murray Barr lecture.
- Attend a local research day. Attend and participate (talk or poster) in a local research day once sufficient data has been collected to permit a presentation. Examples of local meetings include Moffat Research Day, SONA, Western Research Forum, Oncology Research day and Psychiatry Research day. Note: Students may show work previously presented at another venue.
- Attend the [\*Friday ACB seminar series\*](#) plus select departmental seminars and PhD defense talks (80% attendance in each term is mandatory).
- Apply for eligible scholarships.

### Degree Requirements

**Timeline:** Students may commence their PhD degree in January, May or September although most students begin in Sept. PhD students are expected to complete their degree within 48 months (4 years) if they already have an MSc degree or 60 months (5 years) if they switch from an MSc into the PhD program. Note that the 60 months includes **both** the time in the MSc and PhD program. Schulich, SGPS and most scholarship programs will not financially support students enrolled in a PhD program past the specified time limits. Mentors may cease providing stipend support for students after 48 or 60 months of enrolment respectively with 90 days written notice. If circumstances arise that require a student to remain in the PhD program longer than 48/60 months, the student must seek permission from the GAC to remain enrolled.

**Courses:** Students that transfer from the MSc to the PhD program or complete an MSc degree in ACB and then enter the ACB PhD program are required to enrol in the 9605 comprehensive course. Students that transfer from the MSc to the PhD program will have completed ANATCELL9520 and not enrol in ANATCELL 9620 or be required to attend additional ANATCELL 9620 seminars. Students that have completed an MSc or equivalent degree elsewhere and enrol in the ACB PhD program must complete ANATCELL9620 plus one additional full credit. Students that completed their MSc degree elsewhere will enrol in ANATCELL 9620 in their first year and attend ANATCELL 9620 seminars in their second year. If the student has not taken a research skills development graduate style course previously, they are strongly urged to take ANATCELL9555 (Advanced Topics in Cell Biology) or ANATCELL9550 (Advanced Topics in Integrative Neuroscience) as their additional credit. However, other graduate level courses offered at the University are acceptable. Students may enrol in additional courses at the discretion of the supervisory committee or as condition of a scholarship/award.

**Supervisory Committees:** All PhD students must have a supervisory committee. Members of the supervisory committee have the expertise to help students successfully navigate their degrees. Members of the supervisory committee should be viewed as a valuable resource and consulted often both informally and during supervisory committee meetings. The supervisory committee will be composed of the supervisor(s), a representative from the GAC (appointed by the GAC) and at least two additional mentors with expertise in aspects of the proposed research project. Mentors can be selected from ACB or other programs/departments as long as the potential mentor is accredited and in good standing with SGPS. Mentor(s) must be selected in consultation with the student and are subject to approval by the GAC.

**Supervisory Committee Meetings Schedule:** Students should always feel free to ask for guidance or advice from members of the graduate program and any member of the supervisory committee. However, at various stages during the course of the program, formal meetings are required to assess progress and provide constructive feedback that will allow the student to continue to develop towards completion of the degree. Required meetings are indicated below:

***Meeting 1*** – Before December 1<sup>st</sup>. (Year 1) – Research proposal required.

***Meeting 2*** – Before June 1<sup>st</sup> (Year 1) – Progress report required.

***Meeting 3*** – Before December 1<sup>st</sup> (Year 2) – Progress report required.

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*Meeting 4* – Before June 1<sup>st</sup> (Year 2) – Progress report required.

*Meeting 5* – Before December 1<sup>st</sup> (Year 3) – Progress report required.

*Meeting 6\** – Before June 1<sup>st</sup> (Year 3) – Progress report required.

*Meeting 7* – Before December 1<sup>st</sup> (Year 4) – Progress report required.

*Meeting 8\** – Before June 1<sup>st</sup> (Year 4) – Progress report required.

Please see section on [Research Proposals and Progress Reports](#) for additional instruction. Additional meetings may be held at the request of the student or the supervisory committee. Typically, students will seek official permission to write their thesis during **Meeting 6** or **Meeting 8** depending on method of entry into the PhD program.

Note: Schedule is based on September start-time, adjust appropriately for January or May start times.

### Responsibilities of Supervisory Committee Participants

*Mentor's Responsibility* - Make initial contact with potential supervisory committee members to ask if they are willing to serve. Normally this will be done soon after the student has started in the program but changes in supervisory committee composition may occur at different times during the degree. Supervisors are also responsible for helping to ensure that supervisory committee meetings occur on time.

*Student's Responsibility* - The student is responsible for scheduling the supervisory committee meetings and ensuring they are completed on time as per the guidelines. The student is also responsible for supplying the Supervisory committee Evaluation Form with page one completed.

Bring the [Research Proposal Form](#) to the first meeting.

Bring the [Progress Report Form](#) to the second and subsequent meetings.

Bring the [Final Report Form](#) requesting permission to write the thesis to your final meeting.

Following completion of each meeting, the student is responsible for providing copies of the completed and signed evaluation forms to all members of the supervisory committee. The original form, must be given to the Graduate Program Assistant in the ACB departmental office (MSB443) along with an electronic or printed copy of the Research Proposal/Progress Report. A Supervisory Committee Evaluation form must be completed for all meetings except for the new student meeting in September (see [New Student Orientation](#)-page 12).

*GAC Responsibility* - A GAC member will be assigned to all student supervisory committees. A member of the GAC can act as both a GAC representative and scientific advisor if expertise is appropriate. The GAC member, in consultation with the other members of the supervisory committee, will complete the supervisory committee report form. The GAC member is also responsible for explaining the results of the report to the student and answering any question the student might have concerning the report. At their discretion, a GAC member can call for additional committee meetings should they believe more frequent or additional meetings are warranted.

### ***Requirements for Students Entering the PhD Program after Completing an MSc Degree***

#### **Progress Expectations for Year 1**

- Complete required and optional courses with a minimum 80% standing in each offering by the end of year 1.
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:
  - Demonstrate an understanding of current literature relevant to the research of the student.
  - Demonstrate an understanding of the research questions related to the candidate's project.
  - Demonstrate an understanding of- and proficiency with- the tools used to address the research question.
- Successfully complete the PhD comprehensive in the summer term (term 3). Please see [Comprehensive Course](#) Outline Section.

#### **Progress Expectations for Year 2**

- Complete any additional optional course offerings with a minimum 80% standing in each offering.
- Complete preparation and submission of a manuscript (first or co-author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem.
  - Demonstrate an ability to develop the research project beyond the scope initially provided by the mentor.

#### **Progress Expectations for Year 3**

- Complete any additional optional course offerings with a minimum 80% standing in each offering.
- Complete preparation of a second manuscript (first author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- Provide a departmental seminar.
- During the supervisory committee meetings:
  - Continue to demonstrate scientific proficiency and evidence of independent and critical thinking.

#### **Progress Expectations for Year 4**

- Complete preparation of a third manuscript (first author).
- Have published a minimum of 2 manuscripts in peer-reviewed journals.

- Complete thesis preparation and defence.

### *Requirements for Students converting from the MSc to PhD program*

#### **Progress Expectations for Year 1**

- Complete required and optional courses with a minimum 80% standing in each offering by the end of year 1.
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:
  - Demonstrate an understanding of current literature relevant to the research of the student.
  - Demonstrate an understanding of the research questions related to the candidate's project.
  - Demonstrate an understanding of- and proficiency with- the tools used to address the research question.
- Successfully complete the PhD comprehensive in the summer term following conversion to the PhD program. Please see [Comprehensive Course](#) Outline Section.

#### **Progress Expectations for Year 2**

- Complete any additional optional course offerings with a minimum 80% standing in each offering.
- Complete preparation and submission of a 2<sup>nd</sup> manuscript (first or co-author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- Provide a departmental seminar.
- During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem.
  - Demonstrate an ability to develop the research project beyond the scope initially provided by the mentor.

#### **Progress Expectations for Year 3**

- Complete preparation of a 3<sup>rd</sup> manuscript (first author).
- Have published a minimum of 2 manuscripts in peer-reviewed journals
- Complete thesis preparation and defence.
- During the supervisory committee meetings:
  - Continue to demonstrate scientific proficiency and evidence of independent and critical thinking.

## Direct-entry PhD



### *Requirements for Direct Entry PhD Students*

#### **New Student Orientation**

All new direct-entry PhD students that start program in September are required to attend the ACB Student Orientation . Orientation begins 9:00am the Tuesday following Labour Day and runs for Tuesday and Wednesday. During orientation students will:

- Receive orientation/information sessions from the Graduate Chair and Graduate Program Assistant. Additional information will also be provided by:
  - The Society of Graduate Students (SOGS)
  - The Teaching Assistant (TA) Union
  - The School of Graduate and Postdoctoral Studies (SGPS)
  - Occupational Health and Safety
  - UWO Ethics Office
  - ACB Graduate Course Co-ordinators
  - Animal Care and Veterinary Services (ACVS)
- Identify and enrol in all necessary laboratory safety and ACVS courses.
- Meet with members of the graduate affairs committee (GAC), along with the supervisor, to:
  - Select courses
  - Select members of the supervisory committee
  - Sign (if applicable) TA contracts
  - Provide emergency contact information
- Meeting(s) with course co-ordinators should occur in the first week if selected as a TA.

Students starting in January or May will have a less formal orientation.

#### **Program Requirements**

- Attend the annual ACB research day. Participate in the ACB research day once sufficient data has been collected to permit a presentation. Note: Students may show work previously presented at another venue.
- Attend the Annual ACB Murray Barr lecture.
- Attend a local research day. Attend and participate (talk or poster) in a local research day once sufficient data has been collected to permit a presentation. Examples of local meetings include Moffat Research Day, SONA, Western Research Forum, Oncology Research day and Psychiatry Research day. Note: Students may show work previously presented at another venue.
- Attend the [\*Friday ACB seminar series\*](#) plus select departmental seminars and PhD defense talks (80% attendance in each term is mandatory).
- Apply for eligible scholarships.

### Degree Requirements

**Expectations:** Students with an excellent academic standing (85% overall average in the last 10 course credits) and demonstrated research experience may be accepted directly into the PhD program without prior enrolment or completion of an MSc degree. Consequently, it is expected that direct entry PhD students will excel in the program and develop into mature PhD candidates at an accelerated pace

**Timeline:** Students may commence their PhD degree in January, May or September although most students begin in Sept. Direct-entry PhD students are expected to complete their degree within 60 months (5 years) of their start time. Schulich, SGPS and most scholarship programs will not financially support students enrolled in a PhD program past 60 months. Mentors may cease providing stipend support for students after 60 months of enrolment with 90 days written notice. If circumstances arise that require a student to remain in the PhD program longer than 48/60 months, the student must seek permission from the GAC to remain enrolled.

**Courses:** ANATCELL9605, ANATCELL9620 plus either ANATCELL9655 (Advanced Topics in Cell Biology) or ANATCELL9650 (Advanced Topics in Integrative Neuroscience) are required course offerings for PhD students. Students will enrol in ANATCELL 9620 in their first year and attend ANATCELL 9620 seminars in their second year. Students may enrol in additional courses offered by ACB or other programs at the discretion of the supervisory committee or as a condition of acceptance of a scholarship/award.

**Supervisory Committees:** All PhD students must have a supervisory committee. Members of the supervisory committee have the expertise to help students successfully navigate their degrees. Members of the supervisory committee should be viewed as a valuable resource and consulted often both informally and during supervisory committee meetings. The supervisory committee will be composed of the supervisor(s), a representative from the GAC (appointed by the GAC) and at least two additional mentors with expertise in aspects of the proposed research project. Mentors can be selected from ACB or other programs/departments as long as the potential mentor is accredited and in good standing with SGPS. Mentor(s) must be selected in consultation with the student and are subject to approval by the GAC.

**Supervisory Committee Meetings Schedule:** Students should always feel free to ask for guidance or advice from members of the graduate program and any member of the supervisory committee. However, at various stages during the course of the program, formal meetings are required to assess progress and provide constructive feedback that will allow the student to continue to develop towards completion of the degree. Required meetings are indicated below:

**Meeting 1** – Before December 1<sup>st</sup> (Year 1) – Research proposal required.  
**Meeting 2** – Before June 1<sup>st</sup> (Year 1) – Progress report required.  
**Meeting 3** – Before December 1<sup>st</sup> (Year 2) – Progress report required.  
**Meeting 4** – Before June 1<sup>st</sup> (Year 2) – Progress report required.  
**Meeting 5** – Before December 1<sup>st</sup> (Year 3) – Progress report required.  
**Meeting 6** – Before June 1<sup>st</sup> (Year 3) – Progress report required.  
**Meeting 7** – Before December 1<sup>st</sup> (Year 4) – Progress report required.  
**Meeting 8** – Before June 1<sup>st</sup> (Year 4) – Progress report required.  
**Meeting 9** – Before December 1<sup>st</sup> (Year 5) – Progress report required.

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**Meeting 10** – Before June 1<sup>st</sup> (Year 5) – Progress report required.

Please see section on [Research Proposals and Progress Reports](#) for additional instruction.

Additional meetings may be held at the request of the student or the supervisory committee. Students will seek official permission to write their thesis during the final supervisory committee meeting (typically **Meeting 10**).

Note: Schedule is based on September start-time, adjust appropriately for January or May start times.

### Responsibilities of Supervisory Committee Participants

*Mentor's Responsibility* - Make initial contact with potential supervisory committee members to ask if they are willing to serve. Normally this will be done soon after the student has started in the program but changes in supervisory committee composition may occur at different times during the degree. Supervisors are also responsible for helping to ensure that supervisory committee meetings occur on time.

*Student's Responsibility* - The student is responsible for scheduling the supervisory committee meetings and ensuring they are completed on time as per the guidelines. The student is also responsible for supplying the Supervisory committee Evaluation Form with page one completed.

Bring the [Research Proposal Form](#) to the first meeting.

Bring the [Progress Report Form](#) to the second and subsequent meetings.

Bring the [Final Report Form](#) requesting permission to write the thesis to your final meeting.

Following completion of each meeting, the student is responsible for providing copies of the completed and signed evaluation forms to all members of the supervisory committee. The original form, must be given to the Graduate Program Assistant in the ACB departmental office (MSB443) along with an electronic or printed copy of the Research Proposal/Progress Report. A Supervisory Committee Evaluation form must be completed for all meetings except for the new student meeting in September (see [New Student Orientation](#)-page 18).

*GAC Responsibility* - A GAC member will be assigned to all student supervisory committees. A member of the GAC can act as both a GAC representative and scientific advisor if expertise is appropriate. The GAC member, in consultation with the other members of the supervisory committee, will complete the supervisory committee report form. The GAC member is also responsible for explaining the results of the report to the student and answering any question the student might have concerning the report. At their discretion, a GAC member can call for additional committee meetings should they believe more frequent or additional meetings are warranted.

### Progress Expectations for Year 1

- Complete required and optional courses with a minimum 85% standing in each offering by the end of year 1.
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:
  - Demonstrate an understanding of current literature relevant to the research of the student.
  - Demonstrate an understanding of the research questions related to the candidate's project.
  - Demonstrate an understanding of- and proficiency with- the tools used to address the research question.

### Progress Expectations for Year 2

- Successfully complete the PhD comprehensive in the summer term (term 6). Please see [Comprehensive Course](#) Outline Section.
- Complete any additional optional course offerings with a minimum 85% standing in each offering.
- Complete preparation and submission of a first manuscript based primarily on the student's research.
- During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem.
  - Demonstrate an ability to develop the research project beyond the scope initially provided by the mentor.

### Progress Expectations for Year 3

- Complete any additional optional course offerings with a minimum 85% standing in each offering.
- Complete preparation of a second manuscript (first author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- Provide a departmental seminar.
- During the supervisory committee meetings:
  - Continue to demonstrate scientific proficiency and evidence of independent and critical thinking.

### Progress Expectations for Year 4

- Complete any additional optional course offerings with a minimum 85% standing in each offering.
- Complete preparation of a third manuscript (first author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:

- Continue to demonstrate scientific proficiency and evidence of independent and critical thinking.

### **Progress Expectations for Year 5**

- Complete preparation of a fourth manuscript (first author).
- Have published a minimum of 3 manuscripts in peer-reviewed journals.
- Complete thesis preparation and defence.

## MD/PhD



### *Requirements for MD/PhD Students*

#### **New Student Orientation**

All new MD/PhD students that start the program in September are required to attend the ACB Student Orientation the year they begin their graduate training. Orientation begins at 9:00am the Tuesday following Labour Day and runs for Tuesday and Wednesday. During orientation students will:

- Receive orientation/information sessions from the Graduate Chair and Graduate Program Assistant. Additional information will also be provided by:
  - The Society of Graduate Students (SOGS)
  - The Teaching Assistant (TA) Union
  - The School of Graduate and Postdoctoral Studies (SGPS)
  - Occupational Health and Safety
  - UWO Ethics Office
  - ACB Graduate Course Co-ordinators
  - Animal Care and Veterinary Services (ACVS)
- Identify and enrol in all necessary laboratory safety and ACVS courses.
- Meet with members of the graduate affairs committee (GAC), along with the supervisor, to:
  - Select courses
  - Select members of the supervisory committee
  - Sign (if applicable) TA contracts
  - Provide emergency contact information

Students starting in January or May will have a less formal orientation.

#### **Program Requirements**

- Attend the annual ACB research day. Participate in the ACB research day once sufficient data has been collected to permit a presentation. Note: Students may show work previously presented at another venue.
- Attend the Annual ACB Murray Barr lecture.
- Attend a local research day. Attend and participate (talk or poster) in a local research day once sufficient data has been collected to permit a presentation. Examples of local meetings include Moffat Research Day, SONA, Western Research Forum, Oncology Research day and Psychiatry Research day. Note: Students may show work previously presented at another venue.
- Attend the [\*Friday ACB seminar series\*](#) plus select departmental seminars and PhD defense talks (50% attendance in each term is mandatory).
- Apply for eligible scholarships.

### Degree Requirements

**Expectations:** Students that have been accepted to the MD/PhD program are eligible for direct-entry into the ACB PhD program.

**Timeline:** Students may commence their PhD degree in January, May or September although most students begin in Sept. MD/PhD students are expected to complete their degree within 36 months (3 years) of their start time. If circumstances arise that require a student to remain in the PhD program longer than 36 months, the student must seek advice from the MD/PhD mentoring committee.

**Courses:** ANATCELL9605, ANATCELL9620 plus either ANATCELL9655 (Advanced Topics in Cell Biology) or ANATCELL9650 (Advanced Topics in Integrative Neuroscience) are required course offerings for MD/PhD students. Students in the MD/PhD program **will not** complete the NSERC assignment in ANATCELL9655 or ANATCELL9650 but will instead write a CIHR grant application on their **own** research as outlined under the comprehensive course requirements. The CIHR grant will form the basis of their comprehensive report and exam. Grades for ANATCELL9655 or ANATCELL9650 will be based on all course requirements **except** the grant assignment. Students may enrol in additional courses offered by ACB or other programs at the discretion of the supervisory committee or as a condition of acceptance of a scholarship/award. MD/PhD students will be expected to take ANATCELL9620 but **will not** be expected to attend the classes like other research students in year two.

**Supervisory Committees:** All MD/PhD students must have a supervisory committee. Members of the supervisory committee have the expertise to help students successfully navigate their degrees. Members of the supervisory committee should be viewed as a valuable resource and consulted often both informally and during supervisory committee meetings. The supervisory committee will be composed of the supervisor(s), a representative from the GAC (appointed by the GAC) and at least two additional mentors with expertise in aspects of the proposed research project. Mentors can be selected from ACB or other programs/departments as long as the potential mentor is accredited and in good standing with SGPS. Mentor(s) must be selected in consultation with the student and are subject to approval by the GAC.

**Supervisory Committee Meetings Schedule:** Students should always feel free to ask for guidance or advice from members of the graduate program and any member of the supervisory committee. However, at various stages during the course of the program, formal meetings are required to assess progress and provide constructive feedback that will allow the student to continue to develop towards completion of the degree. Required meetings are indicated below:  
**Meeting 1** – Before December 1<sup>st</sup> (Year 1) – Research proposal required.  
**Meeting 2** – Before June 1<sup>st</sup> (Year 1) – Progress report required.  
**Meeting 3** – Before December 1<sup>st</sup> (Year 2) – Progress report required.  
**Meeting 4** – Before June 1<sup>st</sup> (Year 2) – Progress report required.  
**Meeting 5** – Before December 1<sup>st</sup> (Year 3) – Progress report required.  
**Meeting 6** – Before June 1<sup>st</sup> (Year 3) – Progress report required.

Please see section on [Research Proposals and Progress Reports](#) for additional instruction.

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Additional meetings may be held at the request of the student or the supervisory committee. Students will seek official permission to write their thesis during the final supervisory committee meeting (typically **Meeting 6**).

Note: Schedule is based on September start-time, adjust appropriately for January or May start times.

### Responsibilities of Supervisory Committee Participants

*Mentor's Responsibility* - Make initial contact with potential supervisory committee members to ask if they are willing to serve. Normally this will be done soon after the student has started in the program but changes in supervisory committee composition may occur at different times during the degree. Supervisors are also responsible for helping to ensure that supervisory committee meetings occur on time.

*Student's Responsibility* - The student is responsible for scheduling the supervisory committee meetings and ensuring they are completed on time as per the guidelines. The student is also responsible for supplying the Supervisory committee Evaluation Form with page one completed.

Bring the [Research Proposal Form](#) to the first meeting.

Bring the [Progress Report Form](#) to the second and subsequent meetings.

Bring the [Final Report Form](#) requesting permission to write the thesis to your final meeting.

Following completion of each meeting, the student is responsible for providing copies of the completed and signed evaluation forms to all members of the supervisory committee. The original Report form, must be given to the Graduate Program Assistant in the ACB departmental office (MSB443) along with an electronic or printed copy of the Research Proposal/Progress Report. A Supervisory Committee Evaluation form must be completed for all meetings except for the new student meeting in September (see [New Student Orientation](#)-page 24).

*GAC Responsibility* - A GAC member will be assigned to all student supervisory committees. A member of the GAC can act as both a GAC representative and scientific advisor if expertise is appropriate. The GAC member, in consultation with the other members of the supervisory committee, will complete the supervisory committee report form. The GAC member is also responsible for explaining the results of the report to the student and answering any question the student might have concerning the report. At their discretion, a GAC member can call for additional committee meetings should they believe more frequent or additional meetings are warranted.

### Progress Expectations for Year 1

- Complete required and optional courses with a minimum 85% standing in each offering by the end of year 1.
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- During the supervisory committee meetings:
  - Demonstrate an understanding of current literature relevant to the research of the student.
  - Demonstrate an understanding of the research questions related to the candidate's project.
  - Demonstrate an understanding of- and proficiency with- the tools used to address the research question.

### Progress Expectations for Year 2

- Successfully complete the PhD comprehensive in the summer term (term 6). Please see [Comprehensive Course](#) Outline Section.
- Complete any additional optional course offerings with a minimum 85% standing in each offering.
- Complete preparation and submission of a first manuscript based primarily on the student's research.
- During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem.
  - Demonstrate an ability to develop the research project beyond the scope initially provided by the mentor.

### Progress Expectations for Year 3

- Complete any additional optional course offerings with a minimum 85% standing in each offering.
- Complete preparation of a second manuscript (first author).
- Submit an abstract (first or co-author) to a provincial/national/international conference.
- Provide a departmental seminar.
- Complete thesis preparation and defence with sufficient novel data to publish three manuscripts (first author).
- During the supervisory committee meetings:
  - Continue to demonstrate scientific proficiency and evidence of independent and critical thinking.

## Research Progress Reports and Proposals



### ***Research Proposals and Progress Reports***

***Overview:*** Supervisory committee reports are required for all supervisory committee meetings. They provide members of the committee with an update of the student and a starting point for discussion during the meeting. Committee reports also help the student focus their thoughts/research and present the project in a clear and concise manner. Supervisory reports should be prepared by the student with feedback from the supervisor. The completed report should be provided to the supervisor 10 business days prior to the meeting for comment. The report must be provided to members of the supervisory committee 5 business days prior to the meeting. Committee members must be provided either a paper copy or a single PDF file containing the completed report. A copy must also be provided to the Graduate Program Assistant in the departmental office (MSB443).

The reports consist of two parts; A **summary of student's academic activities** and the **research proposal or progress report**. The goal is to prepare the initial document for the first supervisory committee meeting and then revise and update the document with changes and new information for subsequent supervisory committee meetings. It is not necessary and counterproductive to prepare a fresh document from scratch each time unless there is a fundamental change in the research project. There is no restriction on the length of the report but all written materials should be concise and polished. Figures should be of near publication quality (i.e. properly labelled, accompanied by a figure legend etc.).

***Summary of Student's Academic Activities*** – The goal of the activity summary is to keep the supervisory committee informed concerning the students activities. The information also serves as the basis for the preparation of the student's CV.

***Research Proposal/Progress Report*** – A research proposal must be prepared by the student for the first meeting. Thereafter, the student will prepare a progress report. The progress report will develop and grow as the student progresses through the program. By the final supervisory committee meeting the student should have a well thought out, polished document to serve as the basis for the thesis.

***Research Proposal (Meeting #1)*** – Proposal + Summary of Activities.

1. Summary of Student's academic activities

- Courses currently enrolled /to be taken/remaining
- Scholarships (held and to be applied)
- Teaching Assistantship(s) - please indicate time commitment
- Publications (if prior research has produced any abstracts or contributions to published or submitted papers).
- Other Contributions (committee membership etc).

2. Research Proposal

- **Background of Project** - Provide a description of key findings leading to the creation of the hypothesis to be tested. Include relevant references if applicable.
- **Hypothesis** - Provide a focused hypothesis for the project to be undertaken. The hypothesis must be succinct and testable.

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- **Objectives** - Define the objectives to be pursued, the rationale for the objectives selected and the methods that will be employed for each objective. Using point form, indicate the tasks to be completed for each objective including relevant methodology.

### Progress Report (Meeting #2) – Research Proposal + Progress + Summary of Activities.

1. Update the Summary of Student's academic activities
2. Progress Report
  - I. Update the Research Proposal.
  - II. Add Progress obtained to date.
    - **Results** - Indicate progress on each of the objectives outlined in the research proposal. Write a brief description of the results obtained and provided figures with figure legends for data generated.
    - **Discussion** - State the conclusions that can be made from the work accomplished to date. Briefly explain how the results contribute to the overall problem to be studied ('Big Picture').

\*\* manuscripts in preparation or submitted and abstracts may be appended as separate documents for consideration by the committee

### Progress Report (Subsequent Meetings) – Research Proposal + Progress + Summary of Activities.

1. Update the Summary of Student's academic activities
2. Progress Report
  - I. Update the Research Proposal
  - II. Update Progress

### Progress Report (Final Meeting) – Research Proposal + Progress + Summary of Activities + Thesis Outline.

1. Update the Summary of Student's academic activities
2. Update Progress Report
  - I. Update the Research Proposal
  - II. Update Progress
3. Add Thesis Outline

## PhD Comprehensive



### ***Comprehensive Course (ANATCELL9605)***

#### **Purpose**

The purpose of the Comprehensive Exam is to evaluate the student's ability to conduct research at the level of a PhD student. Thus, the student needs to show the ability to form hypotheses, design studies to test the hypotheses, and anticipate expected outcomes and caveats of these experiments, independently, without guidance from the supervisor or peers.

#### **Format and Writing Process**

To test the student's abilities, the student will write a CIHR-style grant proposal as an independent exercise (research module and summary page only). The grant must follow specifications outlined on the CIHR website and not exceed 11 written pages. Additional pages are permitted for references, tables and figures. Only the actual proposal and summary page are required, additional forms from the research module, CV module and budget module are not needed. The range of topics is unrestricted except the grant must not be the same as the research of the student and must be an original idea. *The exception is MD/PhD students who can write the grant on their own thesis topic.* The topic is subject to approval by the GAC.

The grant is to be written by the student as an independent exercise. However, the student will consult with mentor(s) during the initial stages. The mentor(s) will provide feedback as to the scope of the research and the specific aims during the preparation of the initial summary page only. The mentor will not edit (or write) the summary page, but rather provide feedback concerning the hypotheses and proposed experiments, and may point the student in the right direction to think about expected outcomes and potential caveats of the experiments. Typically, the student will have several meetings and/or email exchanges with the mentor(s) over the course of several weeks. Once the summary page is submitted, the mentor will no longer be permitted to provide feedback on the scope of the research, but may be consulted on matters of methodology or grant format.

#### **Evaluation and Examination Process**

- 1. Mentors:** One or more mentors may be selected by the student in consultation with the supervisor and may include the supervisor but not the examiners.
- 2. Examiners:** The examining committee will consist of one GAC member with appropriate expertise in cell biology, neurobiology, and/or clinical anatomy; one member of the ACB graduate program; and one extra-departmental examiner. The student will select two faculty members from the ACB graduate program listed in order of preference and two extra-departmental faculty members listed in order of preference that could be approached to serve as examiners for the comprehensive exam. The GAC examiner will be assigned. The GAC will approach examiners in the order listed by the student. However, there may be instances where the student will need to provide additional names. The student may solicit the advice of the mentor(s) and/or supervisor when considering examiners. The final examining committee is subject to approval by the GAC, and a member of the GAC will usually chair the oral exam.
- 3. Written Component:** After the submission of the summary page, the student will have 4 weeks to write and submit the full written grant proposal. The student must submit an electronic copy of the full grant proposal and one paper copy (for the program files) to the Graduate Assistant and

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the Associate Chair for Graduate Studies. Examiners may request additional paper copies as needed.

The grant will be evaluated by the examiners within 1.5 weeks of submission. For the evaluation of the written component, emphasis will be placed on the ideas, hypotheses, experimental designs and discussion of outcomes and caveats.

The proposal will be rated as either “Acceptable”, “Acceptable with Minor Revisions”, or “In Need of Major Revision”. At least two out of the three examiners must find the grant proposal “Acceptable” and/or “Acceptable with Minor Revisions” to proceed to the oral exam. If the grant is deemed “In Need of Major Revision”, students will receive written feedback and will have 3 weeks to correct the deficiencies in the proposal and resubmit. Failure to obtain an “Acceptable” rating following resubmission will result in removal of the student from the PhD program.

- 4. Oral Exam:** Once the written proposal has been accepted, an oral exam focused on the grant proposal will take place 2 weeks after the date of initial grant submission. The oral exam will follow the traditional MSc exam format; a short 15 minute presentation followed by 2 rounds of questioning (15 minutes & 10 minutes).

The primary goal of the oral exam is test the student’s critical thinking skills. Questions can be related to any of the topics included in the grant and will be designed to test the students ability to “think like a scientist”. In addition, students may also be tested on general background knowledge related to the discipline of the grant and technical considerations within the proposal. The supervisor is encouraged to be present during the examination but may not speak or participate in the examination or evaluation process.

After the oral examination, the examiners will deliberate in the absence of the student and the supervisor and provide a grade of Pass or Fail by majority consensus. Oral and written feedback will also be provided to the student and shared with the supervisor.

If the student fails the oral exam, a second oral exam will be scheduled 3 weeks later. The second oral exam will again focus on the approved research proposal but the questions may change. Failure to pass the supplementary exam will result in removal from the PhD program.

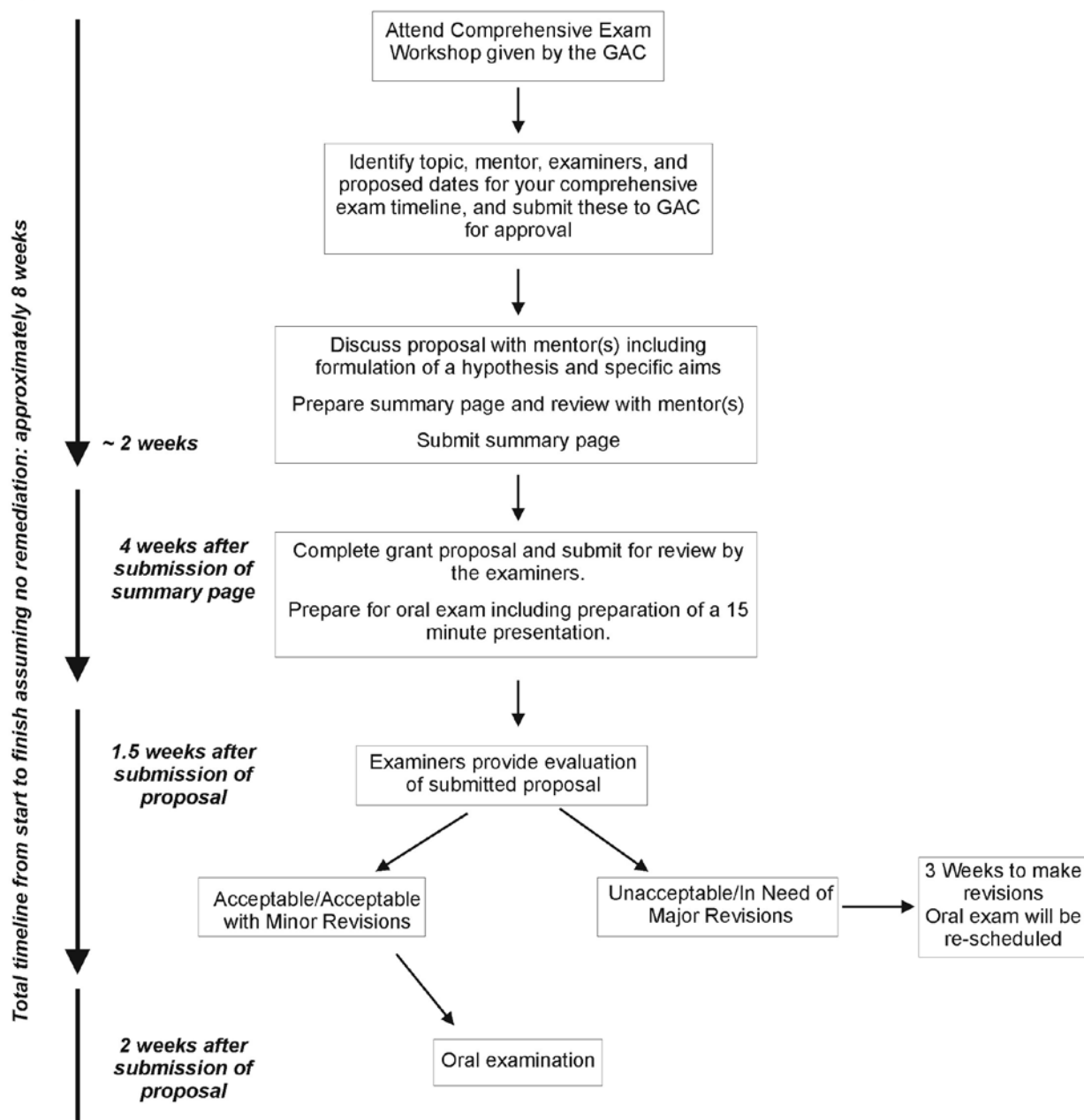
- 5. Plagiarism:** All grants will be screened using online software such as [www.turnitin.com](http://www.turnitin.com) to detect plagiarism. The online software is accessible to both faculty and students for analysis. Students that are unclear about the precise definition of plagiarism should discuss the matter with the Associate Chair for Graduate Studies or a member of the GAC. Some information is available from the Faculty of Graduate Studies at [http://grad.uwo.ca/section\\_ten.htm](http://grad.uwo.ca/section_ten.htm). Plagiarism is an extremely serious academic offence that could result in dismissal from the program.

### **Timeline**

Students are expected to devote the majority of their time to preparing for and completing the comprehensive exam during the months of May and June (*see below*). Supervisors are asked to respect this and should not expect the student to spend much (if any) time on experiments during this time period. Students with research activities (i.e. presentation at a scientific meeting) that conflict with the Comprehensive timeline should consult the Associate Chair for Graduate Studies prior to May to arrange an alternate timeline.

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**Beginning of May**



*Comprehensive guidelines revised December 2011*

## Clinical Anatomy MSc



### ***MSc Requirements: Clinical Anatomy Stream***

#### **New Student Orientation**

All new MSc students starting their degrees in September are required to attend the ACB Student Orientation. Orientation begins 9:00am the Tuesday following Labour Day and takes place as scheduled during the week. During Orientation students will:

- Receive orientation/information sessions from the Graduate Chair and Graduate Program Assistant. Additional information will also be provided by:
  - The Society of Graduate Students (SOGS)
  - The Teaching Assistant (TA) Union
  - The School of Graduate and Postdoctoral Studies (SGPS)
  - Occupational Health and Safety
  - UWO Ethics Office
  - ACB Graduate Course Co-ordinators
  - Animal Care and Veterinary Services (ACVS)
- Identify and enrol in all necessary laboratory safety and ACVS courses.
- Meet with the Clinical Anatomy group to discuss the courses required by each student and discuss research project requirements.
- Meet with the course co-ordinator if selected as a TA and sign necessary contracts.
- Tour the anatomy lab facilities and meet with Yr 2 MSc Clinical anatomy students.
- All new MSc Clinical Anatomy students are also required to attend the ACB TA instructional workshop in the fall of year one.

#### **Program Requirements for Clinical Anatomy Students**

- Attend the annual ACB research day. Participate in the ACB research day once sufficient data has been collected to permit a presentation.
- Attend the Annual ACB Murray Barr lecture.
- Attend a local research day. Attend and participate (talk or poster) in a local research day once sufficient data has been collected to permit a presentation. Examples of local meetings include Moffat Research Day, SONA, Western Research Forum, Oncology Research day and Psychiatry Research day. Note: Students may show work previously presented at another venue.
- Attend the [\*Friday ACB seminar series\*](#) plus select departmental seminars and PhD defense talks (80% attendance in each term is mandatory).
- Attend the 9566 (clinical anatomy) weekly seminars.
- Apply for eligible scholarships.

#### **Degree Requirements for Clinical Anatomy Students**

***Timeline:*** Students may only begin a clinical anatomy MSc degree in September. Clinical anatomy students must complete their MSc degree within 20 months. No financial support is available beyond 20 months. Clinical Anatomy is not offered as part-time studies.

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Courses: ANATCELL 9560, 9561, 9562A, 9564B, 9563, 9531A, 9565, 9567L, 9580, 9566 plus one of either Physiology 2130 or Pathology 2420a. However, other graduate level courses offered by ACB or other graduate programs are also acceptable. If both Physiology 2130 or Pathology 2420a (or equivalent) have already been taken students may enrol in additional courses at the discretion of the supervisory committee.

### Responsibilities of Supervisory Committee Participants

Mentor's Responsibility - Make initial contact with potential supervisory committee members to ask if they are willing to serve. Normally this will be done soon after the student has started in the program but changes in supervisory committee composition may occur at different times during the degree. Supervisors are also responsible for helping to ensure that supervisory committee meetings occur on time.

Student's Responsibility - The student is responsible for scheduling the supervisory committee meetings and ensuring they are completed on time as per the guidelines. The student is also responsible for supplying the Supervisory Committee Evaluation Form with page one completed.

### Clinical Anatomy meeting forms can be found online at

Meeting # 2: [Project Proposal Form](#)

Meeting # 3 & #4: [Progress Meeting Form](#)

Meeting #5: [Final Meeting Form](#)

Following completion of each meeting, the student is responsible for providing copies of the completed and signed evaluation forms to all members of the supervisory committee. The original form, must be given to the Graduate Program Assistant in the ACB departmental office (MSB443) along with an electronic or printed copy of the Research Proposal/Progress Report. A Supervisory Committee Evaluation Form must be completed for all meetings except for the new student meeting in September (see [New Student Orientation](#)-page 35)and the final meeting at which the completed project is presented and defended.

GAC Responsibility - A GAC member will be assigned to all student supervisory committees. A member of the GAC can act as both a GAC representative and scientific advisor if expertise is appropriate. The GAC member, in consultation with the other members of the supervisory committee, will complete the supervisory committee report form. The GAC member is also responsible for explaining the results of the report to the student and answering any question the student might have concerning the report. At their discretion, a GAC member can call for additional committee meetings should they believe more frequent or additional meetings are warranted.

### Composition of the Supervisory Committee

All MSc clinical anatomy students must have a supervisory committee for their research project. Members of the supervisory committee have the expertise to help students successfully navigate their degrees. Members of the supervisory committee should be viewed as a valuable resource and consulted often both informally and during supervisory committee meetings. The supervisory committee will be composed of 2 members of the Clinical Anatomy group, a designated primary supervisor (who may be external to the Clinical Anatomy group) and a representative of the GAC or designated member of the clinical anatomy group. A mentor with expertise in aspects of the proposed research project may be selected.

### Supervisory Committee Meeting Schedule

Students should always feel free to ask for guidance or advice from the clinical anatomists or any member of the supervisory committee. However, at various stages during the course of the program, formal meetings are required to assess progress and provide constructive feedback that will allow the student to continue to develop towards completion of the degree. Required meetings are indicated below:

*Meeting #1* – By the end of the fall term (Year 1) – meet as a group with the Director of the MSc Clinical Anatomy program to discuss project ideas and TA ships. Receive feedback on TA assignments. Supervisory committee members should be selected prior to meeting #2.

*Meeting #2* – By the end of the winter term (Year 1) – Research proposal required

*Meeting #3* – By the end of the summer term (Year 1) – Progress report required (includes course and grade progress as well as research project updates)

*Meeting #4* – By the end of fall term (Year 2) - Progress report required

*Meeting #5* – Exam meeting, end of the spring term (Year 2) – Present completed project

Please see section on [Project Proposals and Progress Reports](#) for additional instruction.

Additional meetings may be held at the request of the student or the supervisory committee.

### Supervisory Committee Evaluation Forms

Supervisory committee reports and appraisals must be completed at meetings 2 through 4. A copy of each progress report is to be kept on file in the department office along with committee reports. The student appraisal forms will help to identify areas of strength and weakness. Areas of weakness are expected to show improvement in subsequent supervisory meetings. Failure to do so may result in removal from the program.

#### Clinical Anatomy meeting forms may be found online at

Meeting # 2: [Project Proposal Form](#)

Meeting # 3 & #4: [Progress Meeting Form](#)

Meeting #5: [Final Meeting Form](#)

### Requirements for Year 1

- Complete required and recommended and optional courses with a minimum of 80% standing in each offering.
- Supervisory committee meetings will focus on the research project. During the meeting the student should:
  - Demonstrate an understanding of current literature relevant to the research project of the student
  - Demonstrate an understanding of the research questions related to the candidate's project
  - Demonstrate an understanding of the tools used to address the research project
- Based on performance as a TA and/or educational technique related course work;
  - Demonstrate competencies in lecture and small group teaching
  - Complete a detailed prosection of a region of their choice. The prosection may be part of a pre-lab preparation or related to the research project.

### Requirements for Year 2

- Complete any additional courses with a minimum 80% standing in each offering
- During the supervisory committee meetings:
  - Demonstrate an understanding of the research project and how it fits into the field of research or the research problem
  - Demonstrate an ability to develop the project beyond the scope initially provided by the mentor
- Submit an abstract to a local/provincial/national/international conference based on research project and progress
- Based on course work and teaching assignments:
  - Deliver at least 1 didactic lecture in an ACB course to demonstrate an ability to effectively teach in a large class lecture
  - As part of Anatomy 9563 group projects, demonstrate an ability to develop an undergraduate level anatomy learning or teaching tool.
  - Demonstrate an ability to dissect and demonstrate cadaveric anatomy
- Complete data collection, educational tools development or product development in preparation of the presentation and writing of the final report.

Due to the structure of the Clinical Anatomy MSc and stipend considerations, Clinical Anatomy students must complete their degree requirements within 5 terms.

### Clinical Anatomy Project Proposals and Progress Reports

Overview: Supervisory committee reports are required for all supervisory committee meetings. They provide members of the committee with an update of the student progress and a starting point for discussion during the meeting. Committee reports also help the student focus their thoughts/research and present the project in a clear and concise manner. Supervisory reports should be prepared by the student with feedback from the supervisor. The completed report should be provided to the supervisor at least **7 business days** prior to

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the meeting for comment. The report must be provided to members of the supervisory committee at least **5 business days** prior to the meeting. Committee members must be provided either a paper copy or a single pdf. file containing the completed report. A copy must also be provided to the Graduate Program Assistant in the department office (MSB443).

The reports consist of two parts; A **summary of student's academic activities** and the **research proposal or progress report**. The goal is to prepare the initial document for the first supervisory committee meeting (meeting #2) and then revise and update the document with changes and new information for subsequent supervisory committee meetings. It is not necessary to prepare a fresh document from scratch each time unless there is a fundamental change in the research project. There is no restriction on the length of the report, but all written materials should be concise and polished. Figures should be of near publication quality (i.e. properly labelled, accompanied by a figure legend etc).

Summary of Student's Academic Activities – The goal of the activity summary is to keep the supervisory committee informed concerning the students activities. The information also serves as the basis for the preparation of the student's CV.

Research Proposal/Progress Report – A research proposal must be prepared by the student for meeting #2. Thereafter, the student will prepare a progress report. The progress report will develop and grow as the student progresses through the program. By the final supervisory committee meeting the student should have a well thought out, polished document to serve as the basis for the final presentation and project submission.

Research Proposal (Meeting #2) – Proposal + Summary of Activities

1. Summary of Student's academic activities

- Courses currently enrolled / to be taken / remaining
- Scholarships (held and to be applied)
- Teaching Assistantship(s) – please indicate time commitment
- Publications (if prior research has produced any abstracts or contributions to published or submitted papers).
- Other contributions (committee membership etc).

2. Project Proposal

The MSc Clinical Anatomy project should be related to the anatomical sciences (gross, histology, neuroanatomy, embryology, imaging in anatomy) and/or any application for the anatomical sciences to clinical work or teaching. The projects may include, but are not limited to, wet laboratory research on cadaveric material, clinical applications or development of educational tools (software, models, online learning modules etc) or testing of various teaching techniques and/or tools. The project is to be written up in a scientific or education publication format but does not represent a thesis. As indicated in the report document, the research project requires a well defined hypothesis and/or goal and set of objectives. As a guideline, the written submission should be 40-50 pages, including figures. Collaborations with Robarts imaging, CSTAR robotics, Faculty of Education, Rehabilitative Sciences, Health Sciences and clinicians within Schulich School of Medicine and Dentistry are encouraged.

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- **Background of Project** – Provide a description of key findings leading to the creation of the goal and objectives to be measured or hypothesis to be tested. Include relevant references if applicable.
- **Hypothesis** – Provide a focused hypothesis for the project to be undertaken. The hypothesis must be succinct and testable. If the project is a development project then a clear aim or goal for the educational tool should be provided with appropriate rationale.
- **Objectives** – Define the objectives to be pursued, the rationale for the objectives selected and the methods that will be employed to evaluate each objective. Using point form, indicate the tasks to be completed for each objective including relevant methodology.

### Progress Report (Meeting #3) – Summary of Activities + Progress + Summary of Activities

1. Update the Summary of Student’s academic activities
2. Progress Report
  - I. Update the Project Proposal.
  - II. Add Progress obtained to-date.
  - III. **Results** – Indicate progress on each of the objectives outlined in the project proposal. Write a brief description of the results obtained or creations made or planned and provide figures with figure legends for data generated.
  - IV. **Discussion** – State the conclusions that can be made from the work accomplished to-date. Briefly explain how the results contribute to the overall problem to be studied (“Big Picture”).

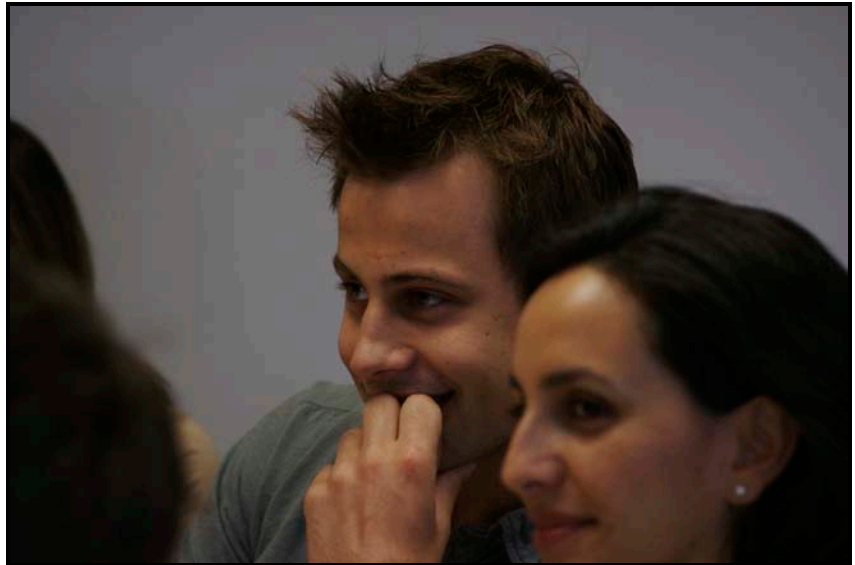
### Progress Report (Subsequent Meetings) – Project Proposal + Progress + Summary of Activities

1. Update the Summary of Student’s academic activities
2. Progress Report
  - i. Update the Project Proposal
  - ii. Update Progress

### Progress Report (Final Meeting) – Summary of Activities + Formal presentation of work

1. Update the Summary of Student’s academic activities
2. Completed written report for submission
3. Formal presentation of project to the committee for completion of degree prior to April 30<sup>th</sup> of the second year.

## Additional Program Policies



### ***Teaching Assistants and Part-Time Jobs***

#### Research Stream Students:

The Anatomy & Cell Biology (ACB) graduate program views teaching as an important component of graduate education. Consequently, ACB encourages students in the program to accept Teaching Assistant positions (TAs) offered through ACB or other departments at the University. However, students are cautioned that serving as TA can be time consuming and it is strongly recommended that students not accept more than a half TA (5hours/week for two terms or 10hours/week for one term). It is also strongly recommended that students consult their supervisors prior to accepting TA positions.

University policy permits students to work a maximum of 10 hours/week outside of their degree requirements. Students may hold part-time jobs working in restaurants, shops or other businesses. TA positions are also considered a part-time job by the University and count towards the 10 hours/week limit. It is very important to understand that accepting a part-time job, including a TA position, does not mean that a student can devote less time to your graduate work in order to make time for a part-time job or TA position.

#### Clinical Anatomy Stream Students:

Teaching is an essential component of the Clinical Anatomy MSc and integrated directly into the curriculum. A half TA or equivalent is mandatory for students enrolled in the program and will be assigned by the Clinical Anatomy faculty. On occasion, additional teaching may be offered to a student with appropriate compensation as defined by the TA contract up to a maximum of a full TA. Additional TA positions or part-time jobs may be accepted by students enrolled in Clinical Anatomy to a maximum time commitment of 10 hours/week as permitted by University regulations. Part-time jobs, other than TA positions, are in addition to the time spent on graduate work.

\*For specific details concerning TA rules and regulations, refer to the [\*TA Collective Agreement\*](#).

### **Holidays**

Students enrolled in the Anatomy & Cell Biology graduate program are entitled to annual holidays without interruption to their stipends. Specifically, students are entitled to 15 business days/year vacation time in addition to statutory holidays. Graduate students do not get spring break or summers off unlike their undergraduate counterparts. If a student wishes to leave during spring break or have time off in the summer, the time away from the University subtracts from the 15 day holiday total. Likewise, during the Winter holiday season, graduate students are entitled to time off during the official University holiday closure (typically December 24<sup>th</sup> to the first week of January). Days off before and/or after the official University closure period are subtracted from the 15 days of holiday time.

Should the University officially close for any reason (ex snow day), students will receive a day(s) off without affecting their holiday time. Likewise, students may take additional time off without affecting their holiday time for special circumstances (attending conferences, recognized religious holidays etc). In all cases, time away from the laboratory or program should be discussed with the supervisor (Research) or program director (Clinical Anatomy).

If it is essential to take holidays during a time that would interfere with the student's obligations (TA for example), the onus is on the student to make suitable arrangements to cover their absence. If circumstances arise that require additional time away from the University beyond the 15 business days, the student must seek permission from their supervisor (Research) or program director (Clinical Anatomy). If substantial time away from the University is necessary (months), the student must consult with Associate Chair for Graduate Studies and take a leave of absence from the program.