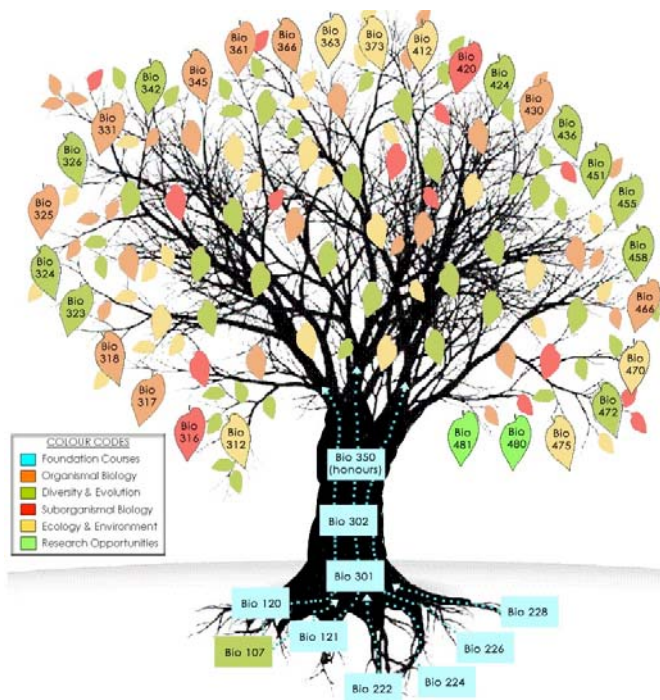


UNDERGRADUATE

ADVISING

HANDBOOK



March, 2012

DISCLAIMER: The information contained in the handbook is based on the on-line University calendar as it appears in March 2012 and includes modifications that are likely to be in effect for the 2012-13 academic year. However, these are not necessarily the official calendar versions. The attached information is provided for advising purposes only. In the event that there are discrepancies between the official University calendar version and any of the information in this Handbook, the University calendar version will prevail. Students are ultimately responsible for ensuring that they meet the requirements shown in the official University calendar. Every effort has been made to ensure the accuracy of the information provided, but the Department of Biology accepts no responsibility for any errors in the attached information.

Preamble:

The annual advising meeting provides an opportunity for students to meet with faculty and obtain formal advice on their undergraduate program. For most first year students, this is the first time they will receive formal advice from an expert. Students entering first year are usually advised about their program by high school counselors or obtain information from the University calendar. Thus, an advising meeting is especially important for students completing their first year of studies. It provides faculty with an opportunity to ensure that programs and course work are set in a manner that will allow students to achieve their goals in a time and cost efficient manner. Senior students are generally better aware of program requirements, but an advising meeting with faculty is still important to ensure that degree requirements for graduation will be met.

Many students also view the advising meeting as an opportunity to obtain some advice on careers in Biology. “*What kind of job can I get with my Biology degree?*” is a common question. This is difficult to answer succinctly, and I often respond by asking the student what they want to do, and from there, try to emphasize that the opportunities are really endless. Their Arts & Science degree is designed to provide them with skills that will serve them no matter their career or job after graduation. Maybe they will end up as a biologist, but even if they don’t, they will have the reading, writing, computer, mathematical, thinking skills to be a life long learner.

Each student is unique and each advising session will be equally unique. It is difficult to put down a format that will work in all situations. However, keep in mind that students will likely remember their contact with you. I try to be supportive, but also to give realistic advice about their progress and their aspirations. I encourage them to have a back-up plan to complete a degree just in case they don’t get into the vet college on their first try. To spread the entrance requirements over a whole degree program and to always work towards a B.Sc. For the really good students, I encourage them to complete an Honours’ program and think about graduate studies as an alternative way to fulfill their interest in sciences.

The literature on university pedagogy indicates that advising by faculty is a critical process in the mentoring of undergraduate students, and an excellent way to attract and retain students in the sciences. Thus, we should take this very seriously, especially in the current climate of resource competition and a limited pool of students. This package contains the basics that you will need to accurately advise students on their programs. If you have any questions, by all means feel free to consult with me.

The enclosed information is intended as a guide only and the University calendar is the official version of program and course requirements. If you find mistakes in any of the attached information, please contact me. The on-line calendar contains the most up-to-date information, but the final 2012-13 version may not be available until later in summer. Students should always be warned to consult the calendar before registration.

*Tracy Marchant
Past UAC Chai
March 10, 2010
[dates updated March 2012]*

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Some Useful Reminders To Give Students

1. Students should always **check** the calendar.
2. Course offerings may **change** before the registration guide is released in July.
3. Most BIOL courses have enrollment **limits**; they should be prepared to be flexible and to register in other required BIOL courses as replacements.
4. Don't register in a course for which they don't have the **prerequisite**. Students must complete prerequisites before taking other courses. **Do not** advise students that prerequisites can be waived.
5. Complete Math/Stats, Chemistry and Biochemistry courses **early** in their program.
6. BIOL 222, 224 226 & 228 should all be completed **before** their third year; these courses are prerequisites for many senior BIOL courses.
7. **Plan** for a degree, even if they want to apply to a professional college.
8. A good idea for most students is to **spread** professional college entry requirements over three or even four years.
9. Consider an **Honours** degree if they like BIOL and have grades over 70%.
10. Take a **minimum** of 12 c.u. BIOL courses in second year.
11. Include some **non-science** courses in their program each year. These should be used to complete program requirements or as general electives
12. Most students find the **mix** of three courses with labs plus two courses without labs to be adequate.
13. Courses from other Colleges can be credited towards a B.Sc., but **only if** the course is on a list specifically approved by the College of Arts & Science.
14. **Transfer** credits from other institutions are determined by Enrolment Services.
15. There are many other **rules**; if in doubt, students should always consult the Calendar.

Frequently Asked Questions From Faculty Advisors

1. Do I use Degree Works or a program monitor form?

For most students you will be able to use the Degree Works system and freeze the audit as a record of the advising session. However, some students, including those with transfer credits, and those in double-honours programs, may not see all their courses appear correctly in Degree Works. In this case, use the program monitor – ask the student to sign into PAWS and retrieve the form from the Arts & Science tab.

2. Will students complete the Old or New B.Sc. programs?

Significant changes in College Requirements 1 to 5 were made effective for students enrolling in the College in September 2005. These include a new Math/Stats C4 requirement. Students completing the old B.Sc. program should be decreasing in number but you may still see an occasional student. The vast majority of students should be able to complete the New BSc program requirements even if they started under the Old BSc program. However, information on the Old BSc program requirements is still included in this advising handbook, just in case.

Students enrolled **before** September 2005 have the option of completing the old or new BSc (Type C) program requirements. **Use the OLD Program Monitor form for students who wish to complete the old science program requirements.**

Students who first enrolled in the College of Arts of Science in Sept 2005 must take the new BSc program requirements. **Use the NEW Program Monitor form for these students.**

3.. What are Program Monitor Forms?

These are a summary of program requirements that are needed for a B.Sc. degree and are to be completed during the advising session. Included with this Handbook are several copies of Program Monitor Forms for the old and new programs. Use these as working copies while you talk with the student or if the student did not bring their copy (but see below). I think these forms are fairly straightforward, but please ask me (or another experienced faculty) if you have any questions.

At the end of the advising appointment, students should be able to see the courses they have left to complete for a degree. The boxes under the To Complete column are not very big, but it is intended that you list course requirements for each year left in the student's program. If you are advising a student going into second year, plan on writing small! Sometimes I will include abbreviated statements such as "plus 9 more senior BIOL in 4th yr" if I am advising a 1st year student who doesn't really know what they want to do. However, I always try to show them the required courses that they will need for their second & third year, at a minimum. I do this in part to encourage them to get the required core courses done and also to give them some options to choose if they can't get into courses because of enrollment limits. **Only courses in which the student has received a passing grade should be listed on this form.**

Once the form is completed, both you and the student should sign it. Then send the student down to the Biology office with the completed form. The Department will make copies of the form and maintain these on file. I often use the comment lines on the form to make notes like: "wants to go into Medicine" or "consult an advisor again next year".

4. What information will be provided by the student?

Students should have prepared for the advising session by checking Degree Works to see if it is accurate and making a list of courses for upcoming terms. This can be done using the planning tool in Degree Works and saved by the student.

Alternately, students may arrive with a program monitor form if their courses do not appear correctly in Degree Works.

4. What about our new BIOL program requirements?

Students who completed BIOL 120 or 121 in the Sept 2007-08 academic year are required to complete the new BIOL program requirements. Students who were enrolled more than 10 years ago are also required to take our new program. See the “**Date of Commencement of a Program**” regulations included in this advising handbook.

Students enrolled in BIOL courses prior to Sept 2007 may chose to complete the old or new BIOL program requirements. However, they cannot do a blend of the new and old requirements. **It is one or the other** – make a note of the option chosen on the comment line of the student’s program monitor.

Students completing the old BIOL program requirements may need to take substitute courses for old BIOL courses no longer offered. A list of acceptable substitute courses approved by the Department of Biology faculty is included in this advising handbook.

The BIOL program descriptions and course calendar descriptions as they are likely to appear in the 2010-11 version of the calendar are included in this Handbook. A preliminary BIOL course timetable will be distributed later. I have also included a copy of the 2004-05 calendar description for the BIOL program. You will need this to advise for the OLD science & BIOL programs.

5. Are there other program requirements I should check?

Yes, there are many. However, some key ones to watch out for are:

- the number of junior (100 level) versus senior (200+) credit units (see notes under Requirement #7 on the Program Monitor Forms). It is a good idea to add these up and write a comment about how many courses listed on the form are at the senior level
- the number of credit units allowed in one subject (e.g. BIOL) is also limited; this includes equivalent courses from other Colleges or Departments
- students are no longer allowed to automatically receive credit for 6 c.u. of courses from other Colleges; instead many courses from other Colleges transfer automatically as equivalent to Arts & Science courses (the current list is included in this advising handbook)
- another good idea is to note the total number of credit units listed in the various boxes of the Form, just to make sure that students will have the 90 or 120 c.u. required to graduate.

6. Should I advise students about other programs?

If a student makes an appointment with you, but they really want to major in another discipline, send them off to the appropriate department. You might want to put a plug in for a BIOL major first, but it is generally not a good idea to advise on programs other than those listed in the

BIOL portion of the calendar. Our department is involved in several interdisciplinary programs (e.g. Biotechnology, Land Use and Environmental Studies) and these appear in our calendar section. However, there are specific faculty in the department who can advise on these interdisciplinary programs, and the office staff tries to filter students as appointments are made. If you happen get a student interested in an interdisciplinary BIOL program, send them off to the appropriate advising expert in our department – a list of these is included in this advising handbook.

7. What do I suggest as electives under requirement #7?

Each faculty will likely have some “favorite” courses they like to recommend to students. These are usually based on experience and personal preference. I always ask students what they find interesting and suggest they take more courses in that area. If they don't seem to know, I often suggest they consider courses in disciplines with flexible prerequisites. Religious Studies and Anthropology, Women's & Gender Studies and Philosophy are particularly good in this regard. I always encourage students to take more CHEM, MATH, BIOCHEM but that can be a tough row to hoe with some. I might suggest students look for courses in other Colleges, but be careful to warn them that these courses must be in the approved Arts & Science list.

The senior CHEM and BIOCHEM courses required for our program are listed under Requirement #7, although they are not exactly electives.

8. How do I find the information I need?

The College website has useful information in its “Students” link. Some of the documents referred to on the site are included in this Handbook (see Table of Contents). The url for the College Academics page is:

<http://artsandscience.usask.ca/students/academics/>

The University calendar is only available on-line and is up to date for the 2012-13 academic year.

<http://www.usask.ca/programs/>

Additional information handouts on various topics are available through the College of Arts & Science website or in the online University Calendar.

Finally, if you don't know something, ask me or one of your other colleagues.

- Chris Todd

BIOL

Program

Requirements

NOTES:

- Students enrolled in BIOL 120 or BIOL 121 as of September 2007 are required to complete the NEW BIOL program requirements. Use the “New” BSc program monitor form for these students.
- Students enrolled in BIOL courses prior to Sept 2007 may elect to complete the “Old” or “New” BIOL program requirements.
- The NEW BSc program monitor form is to be used for students who were first enrolled in the College of Arts & Science in September 2005.
- The OLD BSc program monitor form is to be used for students enrolled in the College of Arts & Science prior to September 2005 and if the student elects to complete these requirements.

Biology Program Description

Biology is the science of the 21st century and at the forefront of stunning advances in our understanding of life processes, ranging from genome discoveries to the conservation of biodiversity and ecosystems. The Department of Biology offers courses in a broad range of foundational and contemporary biological topics, and programs that can be tailored to meet individual interests. We emphasize hands-on, laboratory-based learning experiences in all of our undergraduate courses. Our degree programs promote critical skills development and provide exciting opportunities for sophisticated learning of fundamental principles and contemporary approaches to the science of life. Students graduating with a degree in Biology are well suited for a wide range of careers – in education, applied research or biomedical sciences to name just a few. Biology is an excellent choice for students interested in gaining entrance to a health science program, including medicine, dentistry, nursing, and veterinary medicine. Our faculty conduct first-rate research over the entire biological spectrum and have particular strengths in integrating across all levels of biological organization. We are enthusiastic about our undergraduate teaching and actively encourage students to engage with us in our research. The Honours program is specifically designed to provide students with preparation for more advanced graduate level training in Biology or a related discipline.

Notes: The Department of Biology recently introduced significant changes to its undergraduate courses and programs. Students enrolled prior to September 2007 may complete the old or the new program course requirements. Students commencing their program in 2007 onward must complete the new Biology program requirements. Consultation with a faculty advisor in the Department is strongly encouraged.

Students intending to major in Biology are strongly advised to take CHEM 112.3 and 115.3 before or concurrently with BIOL 120.3 and 121.3 (formerly BIOL 110.6). Students in the fourth year should note that 800-level Biology courses may be taken with permission of the department. It is recommended that students specializing in Biology attend seminars regularly. With the approval of the department, certain courses offered by other departments may be counted as Biology courses in a major or honours program. Courses accepted without special approval are listed at the end of this section.

Degree Requirements

New degree requirements (distribution requirements 1-5) for Type C programs came into effect September 2005. Students enrolled prior to September 2005 may complete the old or the new degree requirements. Students commencing a Type C program in 2005 onward must follow the new Degree Requirements Chart and should refer to Distribution Requirements in the Arts & Science section of the *Calendar* for details.

BSc THREE-YEAR BIOLOGY

C1 Natural Science Requirement - minimum 15 credit units

BIOL 120.3 and 121.3 (formerly BIOL 110.6); CHEM 112.3, 115.3.

Remaining credit units to be selected from the following such that no more than 6 credit units are from any one area:

Computer Science – CMPT 111.3, 115.3.

Physics & Astronomy – ASTR 101.6; PHYS 111.6 (or 115.3; 117.3), 121.6, 128.3.

Earth Science – GEOG 120.3; GEOL 121.3, 122.3.

C2 Humanities Writing Requirement - 6 credit units selected from the following:

ENG 110.6, 111.3, 112.3, 113.3, 114.3; HIST 110.3, 111.3, 114.6, 120.6, 121.3, 122.3, 140.6, 148.6, 150.6, 151.3, 152.3, 170.6, 180.3; LIT 100.6; PHIL 120.3, 133.3.

(Important Note: Students can not take more than 6 cu of 100 level ENG anywhere in their program)

C3 Social Science Requirement - 6 credit units selected from the following courses:

ANTH 111.3; ARCH 112.3, 116.3; ECON 111.3, 114.3; GEOG 130.3; LING 111.3, 112.3; NS 105.3, 106.3; POLS 111.3, 112.3; PSY 110.6; SOC 111.3 or 112.3 or SOC 110.6; WGST 110.6 or any approved senior-level social science course.

Statistics courses in social sciences are not accepted for credit toward this Requirement

(e.g. ECON 204.6, PSY 233.3 and 234.3, SOC 240.3, etc.).

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C4 Mathematics and Statistics Requirement - 3 credit units to be selected from:

MATH 110.3, 112.3, 115.3 116.3, 125.3 (*recommended*) or 264.3; STAT 245.3, 246.3; PLSC 314.3.

C5 General Requirement (6 credit units):

With a few exceptions, any junior or senior course or combination of courses from the humanities, social sciences or fine arts can be used for this requirement.

CLAS 103 and 104, most statistics courses, and courses from other colleges cannot be used.

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C6 Major Requirement (24 credit units) *******OLD PROGRAM*******

BIOL 203.6, 204.3, 205.3, 211.3; one of BIOL 253.3 or 263.3; one of ACB 200.3 (BMSC 220.3), BIOL 217.3 or 317.3 or 331.3.

3 additional senior credit units in approved Biology courses such that at least 3 credit units of the total biology courses are at the 300 or higher level.

C6 Major Requirement (24 credit units) *******EFFECTIVE SEPTEMBER 2007*******

BIOL 222.3, 224.3, 226.3, 228.3, and 302.3 (or 401.3 or 498.3).

9 additional senior credit units in BIOL courses and/or courses chosen from the 'Courses in Other Departments and Colleges' list at the end of the BIOL program calendar description.

C7 Electives Requirement

Required Cognate Courses: 3 credit units selected from BMSC 200, BMSC 230, PLSC240, senior CHEM or senior BIOC

Open Electives: courses to complete the requirements for 90 credit unit Three-year program, of which at least 42 must be at the 200 or higher level.

BSc FOUR-YEAR BIOLOGY

C1 Natural Science Requirement - minimum 15 credit units

BIOL 120.3 and 121.3 (formerly BIOL 110.6); CHEM 112.3, 115.3.

Remaining credit units to be selected from the following such that no more than 6 credit units are from any one area:

Computer Science – CMPT 111.3, 115.3.

Physics & Astronomy – ASTR 101.6; PHYS 111.6 (or 115.3; 117.3), 121.6, 128.3.

Earth Science – GEOG 120.3; GEOL 121.3, 122.3.

C2 Humanities Writing Requirement - 6 credit units selected from the following:

ENG 110.6, 111.3, 112.3, 113.3, 114.3; HIST 110.3, 111.3, 114.6, 120.6, 121.3, 122.3, 140.6, 148.6, 150.6, 151.3, 152.3, 170.6, 180.3; LIT 100.6; PHIL 120.3, 133.3.

(Important Note: Students can not take more than 6 cu of 100 level ENG anywhere in their program)

C3 Social Science Requirement - 6 credit units selected from the following courses:

ANTH 111.3; ARCH 112.3, 116.3; ECON 111.3, 114.3; GEOG 130.3; LING

111.3, 112.3; NS 105.3, 106.3; POLS 111.3, 112.3; PSY 110.6; SOC 111.3 or 112.3 or SOC 110.6; WGST 110.6 or any approved senior-level social science course.

Statistics courses in social sciences are not accepted for credit toward this Requirement

(e.g. ECON 204.6, PSY 233.3 and 234.3, SOC 240.3, etc.).

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C4 Mathematics/Statistics Requirement (6 credit units):

3 credit units from MATH 110.3, 112.3, 115.3, 116.3, 125.3 (*recommended*), 264.3.

3 credit units from STAT 245.3, 246.3 or PLSC 314.3.

C5 General Requirement (6 credit units):

With a few exceptions, any junior or senior course or combination of courses from the humanities, social sciences or fine arts can be used for this requirement.

CLAS 103 and 104, most statistics courses, and courses from other colleges cannot be used.

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C6 Major Requirement (36 credit units) *****OLD PROGRAM*****

BIOL 203.6, 204.3, 205.3, 211.3; one of BIOL 253.3 or 263.3; one of ACB 200.3 (BMSC 220.3), BIOL 217.3 or 317.3 or 331.3.

15 additional senior credit units in approved biology courses such that at least 9 credit units of the total biology courses are at the 300 or higher level.

C6 Major Requirement (36 credit units) *****EFFECTIVE SEPTEMBER 2007*****

BIOL 222.3, 224.3, 226.3, 228.3, 301.3 (or 414.3), and 302.3 (or 401.3 or 498.3).

18 additional senior credit units in BIOL courses and/or courses chosen from the 'Courses in Other Departments and Colleges' list at the end of the BIOL program calendar description, such that at least 9 credit units of the total Biology courses are at the 300 or higher level.

C7 Electives Requirement

Required Cognate Courses (9 credit units): 3 credit units senior CHEM; BMSC 200; 3 credit units selected from BMSC 230, PLSC 240, senior CHEM or senior BIOC.

Open Electives: courses to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200 or higher level.

BSc HONOURS BIOLOGY

C1 Natural Science Requirement - minimum 15 credit units

BIOL 120.3 and 121.3 (formerly BIOL 110.6); CHEM 112.3, 115.3.

Remaining credit units to be selected from the following such that no more than 6 credit units are from any one area:

Computer Science □ CMPT 111.3, 115.3.

Physics & Astronomy □ ASTR 101.6; PHYS 111.6 (or 115.3; 117.3), 121.6, 128.3.

Earth Science □ GEOG 120.3; GEOL 121.3, 122.3.

C2 Humanities Writing Requirement - 6 credit units selected from the following:

ENG 110.6, 111.3, 112.3, 113.3, 114.3; HIST 110.3, 111.3, 114.6, 120.6, 121.3, 122.3, 140.6, 148.6, 150.6, 151.3, 152.3, 170.6, 180.3; LIT 100.6; PHIL 120.3, 133.3.

(Important Note: Students can not take more than 6 cu of 100 level ENG anywhere in their program)

C3 Social Science Requirement - 6 credit units selected from the following courses:

ANTH 111.3; ARCH 112.3, 116.3; ECON 111.3, 114.3; GEOG* 130.3; LING

111.3, 112.3; NS 105.3, 106.3; POLS 111.3, 112.3; PSY 110.6; SOC 111.3 or 112.3 or SOC 110.6; WGST 110.6 or any approved senior-level social science course.

Statistics courses in social sciences are not accepted for credit toward this Requirement

(e.g. ECON 204.6, PSY 233.3 and 234.3, SOC 240.3, etc.).

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C4 Mathematics/Statistics Requirement (6 credit units):

3 credit units from MATH 110.3, 112.3, 115.3, 116.3, 125.3 (*recommended*), 264.3.

3 credit units from STAT 245.3, 246.3 or PLSC 314.3.

C5 General Requirement (6 credit units):

With a few exceptions, any junior or senior course or combination of courses from the humanities, social sciences or fine arts can be used for this requirement.

CLAS 103 and 104, most statistics courses, and courses from other colleges cannot be used.

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C6 Major Requirement (48 credit units) *******OLD PROGRAM*******

BIOL 203.6, 204.3, 205.3, 211.3, 350.3, 414.3; one of BIOL 253.3 or 263.3; one of ACB 200.3 (or BMSC 220.3), BIOL 217.3 or 317.3 or 331.3.

21 additional senior credit units of approved Biology courses such that at least 18 credit units of total Biology courses are at the 300 or higher level.

C6 Major Requirement (54 credit units) *******EFFECTIVE SEPTEMBER 2007*******

BIOL 222.3, 224.3, 226.3, 228.3, 301.3 (or 414.3), 302.3 (or 401.3 or 498.3), and 350.3.

33 additional senior credit units in BIOL courses and/or courses chosen from the 'Courses in Other Departments and Colleges' list at the end of the BIOL program calendar description, such that at least 18 credit units of total Biology courses are at the 300 or higher level.

C7 Electives Requirement

Required Cognate Courses (9 credit units): 3 credit units senior CHEM; BMSC 200; 3 credit units selected from BMSC 230, PLSC 240, senior CHEM or senior BIOC.

Open Electives: courses to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200 or higher level.

Note: the Honours oral examination is no longer required.

BSc HONOURS BIOLOGY

Suggested sequence of courses: ***OLD PROGRAM*******

Year 1

BIOL 120.3 and 121.3 (formerly BIOL 110.6), CHEM 112.3, 115.3 (students intending to go on in Biology are strongly advised to take these Chemistry courses before, or concurrently with, BIOL 120.3 and 121.3 since CHEM 112.3 and 115.3 are prerequisites for some senior courses in Biology), 6 credit units of 100-level English and/or History to meet C2 requirement, and 12 additional credit units.

Year 2

At least 12 credit units in Biology, BIOC 200.3, 3 credit units senior BIOC or senior CHEM, 3 credit units in Statistics (STAT 245.3, 246.3, or PLSC 314.3). Other courses to a total of 30 credit units to meet Program Type C requirement.

Year 3

15 credit units in Biology, 3 credit units in Mathematics (110.3, 112.3, 116.3, or 264.3), 3 credit units in senior Biochemistry or Chemistry, and other courses to a total of 30 credit units to meet Program Type C requirement.

Summer after Year 3

Honours Field Course BIOL 350.3 (registration in T1 of year 4).

Year 4

BIOL 414.3, additional credit units in Biology to meet requirements for an Honours degree, and remaining credit units to meet Program Type C requirement. Students in the Honours program are strongly encouraged to include a research course (BIOL 480.3) in their program.

Suggested sequence of courses ***EFFECTIVE SEPTEMBER 2007*******

Year 1

BIOL 120.3, 121.3, CHEM 112.3, 115.3 (students intending to go on in Biology are strongly advised to take these Chemistry courses before or concurrently with BIOL 120.3 and 121.3 since CHEM 112.3 and 115.3 are prerequisites for some senior courses in Biology), MATH 125.3, 6 credit units of 100-level English and/or History to meet C2 requirement, and 9 additional credit units which may include 200 level BIOL courses or BMSC 200.3.

Year 2

At least 12 credit units in Biology (BIOL 222.3, 224.3, 226.3 and 228.3 are strongly recommended), BMSC 200.3, 3 credit units senior BIOC or senior CHEM, 3 credit units in Statistics (STAT 245.3, 246.3, or PLSC 314.3). Other courses to a total of 30 credit units to meet Program Type C requirement.

Year 3

BIOL 301.3, 302.3 and 12 other credit units in Biology, 3 credit units senior BIOC or senior CHEM, and other courses to a total of 30 credit units to meet Program Type C requirement.

Summer after Year 3

Honours Field Course (BIOL 350.3) (registration in T1 of year 4).

Year 4

21 additional credit units in Biology to meet requirements for an Honours degree, and remaining credit units to meet Program Type C requirement. Students in the Honours program are strongly encouraged to include a research course (BIOL 480.3 or 481.6) in their program.

BSc Double Honours Biology

C1 Natural Science Requirement - minimum 15 credit units

BIOL 120.3 and 121.3 (formerly BIOL 110.6); CHEM 112.3, 115.3.

Remaining credit units to be selected from the following such that no more than 6 credit units are from any one area:

Computer Science □ CMPT 111.3, 115.3.

Physics & Astronomy □ ASTR 101.6; PHYS 111.6 (or 115.3; 117.3), 121.6, 128.3.

Earth Science □ GEOG 120.3; GEOL 121.3, 122.3.

C2 Humanities Writing Requirement - 6 credit units selected from the following:

ENG 110.6, 111.3, 112.3, 113.3, 114.3; HIST 110.3, 111.3, 114.6, 120.6, 121.3, 122.3, 140.6, 148.6, 150.6, 151.3, 152.3, 170.6, 180.3; LIT 100.6; PHIL 120.3, 133.3.

(Note: Students can not take more than 6 cu of 100 level ENG anywhere in their program)

C3 Social Science Requirement - 6 credit units selected from the following courses:

ANTH 111.3; ARCH 112.3, 116.3; ECON 111.3, 114.3; GEOG 130.3; LING

111.3, 112.3; NS 105.3, 106.3; POLS 111.3, 112.3; PSY 110.6; SOC 111.2 or 112.3 or SOC 110.6; WGST 110.6 or any approved senior-level social science course.

Statistics courses in social sciences are not accepted for credit toward this Requirement

(e.g. ECON 204.6, PSY 233.3 and 234.3, SOC 240.3, etc.).

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C4 Mathematics/Statistics Requirement (6 credit units):

3 credit units from MATH 110.3, 112.3, 115.3, 116.3, 125.3 (*recommended*), 264.3.

3 credit units from STAT 245.3, 246.3 or PLSC 314.3.

C5 General Requirement (6 credit units):

With a few exceptions, any junior or senior course or combination of courses from the humanities, social sciences or fine arts can be used for this requirement.

CLAS 103 and 104, most statistics courses, and courses from other colleges cannot be used.

Provided that not more than 6 credit units in one subject are used in C2, C3 or C5.

C6 Major Requirement (36 credit units)) *****OLD PROGRAM*****

BIOL 203.6, 204.3, 205.3, 211.3, 350.3, 414.3; BIOL 253.3 or 263.3; 217.3 or 317.3 or 331.3 or BMSC 220.3 (ACB 200.3).

9 additional senior credit units of BIOL courses such that at least 9 credit units of the total BIOL courses are at the 300 or higher level.

C6 Major Requirement (30 credit units) *****EFFECTIVE SEPTEMBER 2009*****

BIOL 222.3, 224.3, 226.3, 228.3, 301.3 (or 414.3), 302.3 (or 401.3 or 498.3), and 350.3.

9 additional senior credit units in BIOL courses and/or courses chosen from the 'Courses in Other Departments and Colleges' list at the end of the BIOL program calendar description, such that at least 9 credit units of total BIOL courses are at the 300 or higher level.

C7 Electives Requirement

Required Cognate Courses (9 credit units): 3 credit units senior CHEM; BMSC (BIOC) 200.3; 3 credit units from the following: any other senior CHEM, BMSC 230.3 or any other senior BIOC.

Open Electives: courses to complete the requirements for 120 credit unit Four-year program, of which at least 66 must be at the 200 or higher level.

Note: the Honours oral examination is no longer required.

Biology has a double honours program with Biochemistry (see separate course listing on the next page). Students should consult with both departments if they are interested in a Double Honours.

Biology & Biochemistry BSc Double Honours

Note: The Departments of Biology and Biochemistry have agreed that the following courses will meet the requirements of a BSc Double Honours in their disciplines. Students should consult with both Departments.

15 cu Natural Science	BIOL 120.3 BIOL 121.3 CHEM 112.3 CHEM 115.3 Additional 3 cu from: CMPT 111.3, 115.3; ASTR 101.6; PHYS 115.3, 117.3, 125.3; GEOG 120.3; GEOL 121.3, 122.3	
6 cu English/History	6 cu	
6 cu Social Sciences	6 cu	
6 cu Math/Stats	3 cu MATH from MATH 110.3, 112.3, 115.3, 116.3, 125.3, 264.3 3 cu STATS from STAT 245.3, 246.3 or PLSC 314.3	
6 cu Humanities, Fine Arts, Social Sciences or Languages	6 cu	
Major (60 cu)	30 cu	30 cu
	CHEM 250.3 BMSC 200.3 BMSC 210.3 BMSC 220.3 BMSC 230.3 BMSC 240.3 BIOC 310.3 BIOC 311.3 or MCIM 391.3 BIOC 490.0 <i>6 cu chosen from: BIOC 412.3, 420.3, 430.3, 435.3, 436.3, 437.3, CHEM 456.3, CHE 461.3; Research project courses BIOC 488.3* or 489.6*</i>	BIOL 222.3 BIOL/BMSC 224.3 BIOL 226.3 BIOL 228.3 BIOL 301.3 BIOL 302.3 BIOL 350.3 <i>9 cu chosen from: 300-level or 400-level BIOL courses including research project courses BIOL 480.3* or 481.6*</i>
Requirement 7	21 cu – must include at least 12 cu senior science electives (see <i>list of Approved Science Electives for Biochemistry Program</i> posted in the <i>University Calendar</i>) and at most 9 cu open electives	
Total	120 cu	

* Students may complete a maximum of 6 credit units of research project courses.

Environmental Biology Calendar Description

This interdisciplinary program examines ecosystems with a focus on how living organisms interact with their environment. A major in Environmental Biology will accommodate a wide variety of student interests and aspirations, including a career in environmental science or as preparation for more advanced study. Students completing this program will have a comprehensive understanding of the basic science of environmental biology and ecological theory, an exposure to technical skills, and will be articulate and knowledgeable about the complex environmental issues facing our society. Areas of emphasis are biodiversity, conservation, ecological processes at the levels of genes to communities to landscapes, environmental contamination, and other aspects of applied ecology. Opportunities are provided for students to pursue their own particular interests through senior electives. Courses from other departments and colleges are used to supplement those from the Department of Biology. The program culminates in a senior course taught by faculty researchers in environmental biology. Students will apply their interdisciplinary knowledge to current environmental issues in Biology, while refining communication and analytical skills and developing a sense of community. The Honours program allows for a more in-depth training and places an emphasis on field studies and original research by the student. We invite you to contact the Department of Biology for further information.

BSc Four-year Environmental Biology

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, 121.3; CHEM 112.3, 115.3; GEOG 120.3

C2 Humanities Writing Requirement (6 credit units)

6 credit units 100-level English and/or History

C3 Social Science Requirement (6 credit units)

6 credit units from the Social sciences

C4 Mathematics/Statistics requirement (6 credit units)

3 credit units from MATH 110.3, 112.3, 115.3, 116.3, 125.3 (recommended) or 264.3

3 credit units from STAT 245.3, 246.3 or PLSC 314.3

C5 General Requirement (6 credit units)

6 credit units to be selected from the areas of Humanities, Fine Arts, Social Sciences or Languages such that no more than 6 credit units are from any one subject in C2, C3, or C5

C6 Major Requirement (36 credit units)

BIOL 222.3, 224.3, 226.3, 228.3, 301.3 and 410.3;

Courses chosen from each of four thematic areas:

A) Understanding effects of environmental contaminants - at least one of TOX 301.3 or BIOL 475.3 or CHEM 375.3

B) Theoretical basis of conservation and management strategies at multiple scales from individuals to landscapes - at least one of BIOL 470.3, BIOL 363.3 (formerly BIOL 473.3), PLSC 423.3

C) In depth knowledge of the structure and function of an aquatic or terrestrial community or ecosystems - at least one of BIOL 412.3, BIOL 373.3, PLSC 422.3, PLSC 425.3

D) In depth knowledge of the phylogeny and field identification of a major plant or animal group - at least one of BIOL 323.3, 365.3, 436.3, 451.3, 455.3, 458.3, 466.3

Plus 6 additional cu in senior BIOL courses

C7 Electives Requirement

Required Cognate Courses (15 credit units) -

EVSC 110.3, CHEM 250.3, GEOG 222.3 or 322.3, GEOG 280.3, GEOG 385.3 or RRM 212.3

Open electives- A total of 120 credit units are required for this degree. At least 66 credit units must be at the 200+ level.

BSc Honours Environmental Biology

C1 Natural Science Requirement (minimum 15 credit units)

BIOL 120.3, 121.3; CHEM 112.3, 115.3; GEOG 120.3

C2 Humanities Writing Requirement (6 credit units)

6 credit units 100-level English and/or History

C3 Social Science Requirement (6 credit units)

6 credit units from the Social sciences

C4 Mathematics/ Statistics requirement (6 credit units)

3 credit units from MATH 110.3, 112.3, 115.3, 116.3, 125.3 (recommended) or 264.3

3 credit units from STAT 245.3, 246.3 or PLSC 314.3

C5 General Requirement (6 credit units)

6 credit units to be selected from the areas of Humanities, Fine Arts, Social Sciences or Languages such that no more than 6 credit units are from any one subject in C2, C3, or C5

C6 Major Requirement (54 credit units)

BIOL 222.3, 224.3, 226.3, 228.3, 301.3, 350.3 410.3, 480.3 or 481.6;

Courses chosen from each of four thematic areas:

A) Understanding effects of environmental contaminants - at least one of TOX 301.3 or BIOL 475.3 or CHEM 375.3

B) Theoretical basis of conservation and management strategies at multiple scales from individuals to landscapes - at least one of BIOL 470.3, BIOL 363.3 (formerly BIOL 473.3), PLSC 423.3

C) In depth knowledge of the structure and function of an aquatic or terrestrial community or ecosystems - at least one of BIOL 412.3, BIOL 373.3, PLSC 422.3, PLSC 425.3

D) In depth knowledge of the phylogeny and field identification of a major plant or animal group - at least one of BIOL 323.3, 365.3, 451.3, 455.3, 458.3, 466.3

15 or 18 additional cu in senior BIOL or equivalent courses to total 54 cu in the major.

Students with relevant work-related experience may qualify for a waiver of the BIOL 480.3 or 481.6 requirement; contact the Department of Biology for more information about this provision.

C7 Electives Requirement

Required Cognate Courses (15 credit units)

EVSC 110.3, CHEM 250.3, GEOG 222.3 or 322.3, GEOG 280.3, GEOG 385.3 or RRM 212.3

Open electives - A total of 120 credit units are required for this degree. At least 66 credit units must be at the 200+ level.

Chart Summarizing Courses Required in the BSc Environmental Biology Majors

Requirement Category	BSc 4 year in ENVB	BSc Honours in ENVB
C1 15 cu Natural Science	BIOL 120.3 & 121.3 CHEM 112.3 & 115.3 GEOG 120.3	BIOL 120.3 & 121.3 CHEM 112.3 & 115.3 GEOG 120.3
C2 6 cu Humanities Writing	e.g. ENG 110.6	e.g. ENG 110.6
C3 6 cu Social Sciences	e.g. ECON 111.3 GEOG 130.3	e.g. ECON 111.3 GEOG 130.3
C4 6 cu Math/Stats	e.g. MATH 125.3 STATS 245.3	e.g. MATH 125.3 STATS 245.3
C5 6 cu Humanities or Social Science or Fine Arts	6 cu "open"	6 cu "open"
C6 ENVB Major Requirements	<p>36 cu required: BIOL 222.3 BIOL 224.3 BIOL 226.3 BIOL 228.3 BIOL 301.3 BIOL 410.3</p> <p>At least one of BIOL 363.3 470.3, or PLSC 423.3</p> <p>At least one of TOX 301.3, BIOL 475.3 or CHEM 375.3</p> <p>At least one of BIOL 373, 412.3, PLSC 422.3 or 425.3</p> <p>At least one of BIOL 323.3, 365.3, 451.3, 455.3, 458.3 or 466.3</p> <p>Plus 6 additional cu of senior BIOL or equivalent courses</p>	<p>54 cu required: BIOL 222.3 BIOL 224.3 BIOL 226.3 BIOL 228.3 BIOL 301.3 BIOL 350.3 BIOL 410.3 BIOL 480.3 or 481.6</p> <p>At least one of BIOL 363.3 470.3, or PLSC 423.3</p> <p>At least one of TOX 301.3, BIOL 475.3 or CHEM 375.3</p> <p>At least one of BIOL 373, 412.3, PLSC 422.3 or 425.3</p> <p>At least one of BIOL 323.3, 365.3, 436.3, 451.3, 455.3, 458.3 or 466.3</p> <p>Plus 15 or 18 cu senior BIOL or equivalent courses</p>
Electives	EVSC 110.3 GEOG 222.3 or 322.2 GEOG 280.3 RRM 212.3 or GEOG 385.3 CHEM 250.3 plus 30 cu "open"	EVSC 110.3 GEOG 222.3 or 322.3 GEOG 280.3 RRM 212.3 or GEOG 385.3 CHEM 250.3 plus 12 cu "open"
Total	120 cu	120 cu

Relevant courses for advising purposes regarding "open electives": CHEM 374.3; ECON 111.3 & 114.3, GEOG 130.3 & 386.3, WGST 202.3, PHIL 226.3, BIOL 312.3; others as appropriate. A maximum of 6 cu from one subject area may be used to meet the C1 to C5 requirements above. Other restrictions also apply. A minor in Chemistry, Geography or another discipline is possible with careful planning of coursework. Students are strongly encouraged to consult an advisor in the Department of Biology.

MINORS

Minor in Biology

Students who, in conjunction with a major in a different subject or an interdisciplinary program, take 6 credit units of 100-level BIOL plus 12 credit units senior BIOL will receive a Minor in Biology. At least 3 credit units must be at the 300- or 400-level. Courses listed under the "C6 Major Requirement" of the student's program Major cannot be used to meet requirements for the Minor.

NOTE: BIOL Majors cannot also receive credit for a BIOL minor.

Minor in Chemistry

Students, who, in conjunction with a major in a different subject or an interdisciplinary program, take 18 credit units or more of Chemistry courses will receive a Minor in Chemistry. At least 3 credit units must be at the 300- or 400-level. Courses listed under the "C6 Major Requirement" of the student's program Major cannot be used to meet requirements for the Minor.

Minor in Computer Science

Students who, in conjunction with a major in a different subject or an interdisciplinary program, take 18 credit units or more of Computer Science courses will receive a Minor in Computer Science. At least 3 credit units must be at the 300- or 400-level. Courses listed under the "C6 Major Requirement" of the student's program Major cannot be used to meet requirements for the Minor.

Minor in Geographic Information Systems

A minor program in Geographic Information Systems (GIS) can be taken in conjunction with any non-geography major or honours degree program. This minor program will provide students with a strong and structured understanding of modern technologies employed in spatial data acquisition and analysis.

The requirements are: GEOG 120, 130, 222, 320, 321, 322, 323.

Minor in Toxicology

Required Courses (6 credit units): TOX 300.3, TOX 301.3

A minimum of 6 credit units from: TOX 310.3, TOX 321.3, TOX 402.3, TOX 403.3, TOX 412.3,

A maximum of 6 credit units from: BIOL 224.3, BIOL 312.3, BIOL 412.3, BIOL 475.3, CHEM 375.3, GEOG 351.3, EVSC 420.3

If students have already taken HSC 208.6 or BIOL 224.3 towards fulfilling their major, it cannot be counted towards their minor. Any other course listed under the "C6 Major Requirement" of the student's program Major cannot be used to meet requirements for the Minor.

Minors are available in many other disciplines - consult the online University Calendar.

INTERDISCIPLINARY PROGRAM MAJORS

Agricultural Biology

Students should see Professor Art Davis, Department of Biology.

Biology & Biotechnology

Students should see Professor Peta Bonham Smith, Department of Biology.

Environmental Biology

Students should see Professor Jeff Hudson, Department of Biology.

Toxicology

Students should see the Toxicology program coordinator.

Other interdisciplinary majors are available - consult the online University Calendar.

BIOL

Course

Descriptions

&

Offerings

2012-13

Note: These are subject to change – official calendar descriptions will be available in summer through the online University course calendar. Final BIOL course offerings will be available through the PAWS registration guide in mid summer.

BIOL — BIOLOGY

Department of Biology, College of Arts and Science, University of Saskatchewan

BIOL 107.6 — 1&2(3L-1.5T)

The Living Earth - Not scheduled to be offered on campus in 2012-13

Includes geological, biological and ecological studies. It considers the history of the earth and the forces which shape its changing surface, the nature of life and the requirements for life on the earth, heredity and evolution including the record of life preserved in the rocks, organism diversity, and the effects of people on the environment. The lectures will be supplemented by outside reading and by small-group tutorial and demonstration sessions.

Note: Students with credit for BISC 100 or 101 or BIOL 108, 110, 120 or 121 or GEOL 205 or 206 may not take this course for credit. BIOL 107 is recommended for students in Program Types A, B and D. Students in Program Type C can use BIOL 107 as a junior elective in program requirement #7.

BIOL 108.6 — 1&2(3L-3P)

The Living Earth

Follows the same lectures as BIOL 107 but has a three-hour laboratory each week. Designed for College of Education students in the Elementary Program. There will be a Physical Sciences/Biological Sciences laboratory devoted to an integrated approach to the environment, using techniques from Physics, Chemistry, Biology and Geology. This laboratory is equivalent to a three-hour practicum.

Note: Students with credit for BISC 100 or 101 or BIOL 107, 110, 120 or 121 or GEOL 205 or 206 may not take this course for credit.

BIOL 120.3 — 1/2(3L-3P)

The Nature of Life

An introduction to the underlying fundamental aspects of living systems: covering cell biology, genetics and the evolutionary processes which lead to complex, multi-cellular life forms.

Prerequisite(s): Biology 30 or BIOL 107 or BIOL 108; Chemistry 30 is strongly recommended.

Note: Students with credit for BIOL 110 will not receive credit for BIOL 120.

BIOL 121.3 — 1/2(3L-3P)

The Diversity of Life

Our world has at least 15 million species, all of which have adapted to particular environments and lifestyles and use energy to grow and reproduce. We examine these processes in representative organisms from all the major groups, and discuss factors influencing changes in biodiversity over time and space.

Prerequisite(s): Biology 30 or BIOL 107 or BIOL 108.

Note: Students with credit for BIOL 110 will not receive credit for BIOL 121.

BIOL 222.3 — 1(3L-3P)

The Living Plant

Will examine the organization of the plant body and how cells, tissues and organs function and contribute to growth, development and reproductive success. The course will deal broadly with plant biology, emphasizing flowering plants, and providing the foundation for senior courses on plants.

Prerequisite(s): BIOL 120; BIOL 121 is strongly recommended.

Note: Students with credit for BIOL 202 or BIOL 205 m

ay not take this course for credit.

BIOL 224.3 — 1/2(3L-3P)

Animal Body Systems

Will study the problems all animals overcome in order to survive and reproduce, and the different body systems that must deal with both unique and common environmental challenges.

Prerequisite(s): BIOL 120; BIOL 121 is strongly recommended.

Note: Students with credit for BIOL 203 or BIOL 217 or HSC 208 will not receive credit for BIOL 224.

BIOL

226.3 — 1/2(3L-3P)

Genes to Genomics

Content ranges from Mendelian genetics to computational procedures based on the complete genome. Examples from eukaryotic species, including humans, are emphasized. Topics include classical transmission genetics, cytogenetics, DNA structure and replication, gene function, mutation and repair, regulation, recombinant DNA technology, and structural, functional and comparative genomics.

Prerequisite(s): BIOL 120; BIOL 121 is strongly recommended.

Note: Students with credit for BIOL 211 will not receive credit for BIOL 226.

BIOL 228.3 — 1/2(3L-3P)

An Introduction to Ecology and Ecosystems

An introduction to population, community and ecosystem ecology. The structure and dynamics of communities will be considered along with energy flow and biogeochemical cycles in ecosystems. Effects of human activities on community and ecosystem processes will be reviewed.

Prerequisite(s): BIOL 121 or GEOG 120 or 6 credit units in Geology.

Note: Students with credit for BIOL 253 or PLSC 213 will not receive credit for BIOL 228.

BIOL 298.3 or 299.6 — 1/2(3L)

Special Topics

Offered occasionally by visiting faculty and in other special situations. Students interested in these courses should contact the department for more information.

BIOL 301.3 — 1/2(1.5L-1.5P)

Critical Issues in Biology

Examines the essential processes and principles of current, topical biological research. The course is designed to enhance the capacity to understand biological concepts, critically evaluate scientific work, develop logical and sound opinions and improve written and oral communication skills.

Prerequisite(s): 15 credit units in Biology.

Note: This course is a requirement in Four Year and Honours Biology degrees; students in these programs should consider taking BIOL 301 as early as possible in their program. Will first be offered in term one of 2009-2010.

BIOL 302.3 — 1/2(3L-3P)

Evolutionary Processes

A quantitative and conceptual overview of evolutionary mechanisms at different biological scales, including molecular/genetic, population and species levels.

Prerequisite(s): BIOL 120, BIOL 121, BIOL 226 and 3 senior credit units in BIOL.

Note: This course is a requirement in all Biology degrees and serves as a prerequisite for other senior BIOL courses. Students should consider taking this course no later than their third year. Students with credit for BIOL 263 or BIOL 401 may not take this course for credit.

BIOL 312.3 — 2(3L)

Life in the North – Not scheduled to be offered on campus in 2012-13

Provides students with a greater understanding of the complexity of important concepts and issues related to the land and environment of the North. The course focuses on the impacts of ecological and physical changes of northern ecosystems on the peoples. Emphasis is given to the challenges of sustainability of ecosystems in the Circumpolar North, and to the need for long-term and international stewardship.

Prerequisite(s): NRTH 101 and 6 credit units in Natural Sciences (6 credit units selected from BIOL 107, 108, 120 and 121 recommended).

Note: Students enrolled in a B.Sc. Four Year, Three-year or Honours in Biology can use BIOL 312 only to fulfill degree requirement #7 of the B.Sc. This course meets the natural science requirement for Programs A, B, D.

BIOL 316.3 — 2(3L-3P)

Molecular Genetics of Eukaryotes

Examines advanced topics in the molecular genetics of eukaryotes. Examples of topics covered include epigenetics, RNA interference or post-transcriptional gene silencing, the role of model organisms in scientific research, organelle genetics, and RNA splicing. The lab will involve a combination of hands-on experimentation, computer-based analysis and student presentations

Prerequisite(s): BIOL 226 (or 211).

BIOL 317.3 — 1(3L-4P)**Fundamentals of Animal Physiology**

Considers physical, chemical and functional aspects of animal cells and tissues. Specifically examines membrane transport mechanisms, bioelectricity and fundamental principles of muscle and nervous system physiology, evolution and plasticity. Cellular mechanisms underlying learning and memory are introduced.

Prerequisite(s): BIOL 224 or HSC 208; CHEM 112; CHEM 115 or CHEM 250 (CHEM 115 recommended); PHYS 115 and 117 are recommended.

Note: Students with credit for BIOL 217 will not receive credit for this course. Offered on an annual basis.

BIOL 318.3 — 2(3L-4P)**Comparative Animal Systems Physiology**

An in-depth examination of cardiovascular, respiratory, osmoregulatory, digestive, and reproductive system physiology in animals. Examples are drawn from vertebrate and invertebrate models. Emphasizes endocrine and nervous coordination of cellular and whole animal body functions.

Prerequisite(s): BIOL 317 (or 217) or PHSI 334 and 336.

Note: Students with credit for BIOL 218 will not receive credit for BIOL 318.

BIOL 323.3 — 1(3L-4P)**Plant Systematics and Evolution**

Introduces vascular plant diversity. Will include basic principles of plant systematics (methods of classification, description, nomenclature and taxonomic keys), practical experience with the identification of vascular plants, and tempos and patterns of plant speciation and evolution.

Prerequisite(s): BIOL 121 and 222 (or 202 or 205).

Note: Students are required to make a collection of plants and may wish to begin the collection over the summer prior to the course. In that case, contact the instructor for details and supplies pertaining to the plant collection.

BIOL 324.3 — 2(3L-3P)**Plants and Human Affairs**

A consideration of economically important vascular plants, plant families, plant parts and products used as food, textiles and medicines. The origin, history and domestication of plants and major crops, diversification of crops and major centers of agriculture in the world and fundamental roles of plants in human societies are discussed.

Prerequisite(s): 6 credit units selected from BIOL 107, 108, 120, 121; or completion of 60 credit units at the university level and permission of the instructor.

BIOL 325.3 — 2(3L-4P)**Plant Cells and Tissues**

A structural and functional study of the organization of the vascular plant body. The course deals with plant cell organelles, cell types and basic tissue organization. Examination of live material is emphasized in the laboratory.

Prerequisite(s): BIOL 121 and 222 (or 202 or 205).

BIOL 326.3 — 1(3L-4P)**Plant Development— Not scheduled to be offered on campus in 2012-13**

Deals with patterns of growth and development of the plant body with special reference to genetic, hormonal and environmental control of developmental processes. Flowering plants are emphasized but also compares evolutionary changes in developmental patterns within other plant groups. Laboratories examine live materials and include tissue culture and other experimentation.

Prerequisite(s): BIOL 222 (or 202 or 205); BIOL 121 is recommended.

BIOL 331.3 — 2(3L-4P)**Plant Physiology**

Three sections which deal respectively with plant cell physiology, the physiology of the whole plant and the physiology of plant growth and morphogenesis.

Prerequisite(s): BIOL 222 (or 202 or 205).

BIOL 342.3 — 2(3L-4P)**Fungi Environment and People— Not scheduled to be offered on campus in 2012-13**

Often overlooked due to their small size, or wrongly considered to be 'lower plants', fungi are more closely related to animals. They have major impacts on human health, biotechnology, the environment, and agriculture. We examine fungal diversity, cell biology and development, reproductive and genetic strategies, symbioses, and biotechnology applications in this diverse and successful group.

Prerequisite(s): BIOL 120 and 121; BIOL 226 (or 211) and/or ACB 200 are recommended.

Note: There will be an all-day field trip to Emma Lake the second Saturday of the term to collect forest mushrooms.

BIOL 345.3 — 1(3L-4P)**Introductory Plant Pathology**

A survey of the biology of the major groups of plant pathogens and of the major types of plant diseases with emphasis on symptoms, transmission and control. Approximately equal emphasis is placed on theory and on laboratory work.

Prerequisite(s): BIOL 121 and 222 (or 202 or 205).

BIOL 350.3 — 1(7P)**Field Course**

Introduction to the principles and methods of field biology as applied to southern boreal forest and lake ecosystems. Students will complete an independent field research project. Includes an extended field study during late summer at the Biological Field Station on the Kenderdine Campus at Emma Lake.

Prerequisite(s): 21 senior credit units BIOL, permission of the instructor and restricted to students with a minimum CWA of 70% overall and in Biology.

Note: This course is required in the Honours program in Biology. Enrolment is limited and priority will be given to students admitted to the Honours program in Biology. It is recommended that this course be completed after the third year of study.

BIOL 361.3 — 1/2(3L-4P)**Vertebrate Biology**

An introduction to the biology of fishes, amphibians, reptiles, birds and mammals. The course will consist of a brief phylogenetic survey and an examination of the evolution of different vertebrate body systems. Emphasis will be placed on comparative morphology, embryology and physiology.

Prerequisite(s): BIOL 121 and 224 (or 203).

Note: Students with credit for BIOL 351 may not take this course for credit.

BIOL 363.3 — 1(3L-4P)**Population Ecology**

The theory of population growth, distribution and abundance of organisms.

Prerequisite(s): BIOL 228 and a course in statistics. BIOL 302 is recommended.

Note: Students with credit for BIOL 263 or 473 may not take this course for credit.

BIOL 365.3 — 1(3L-4P)**Insect Diversity and Evolution— Not scheduled to be offered on campus in 2012-13**

Surveys insects and their close relatives based on morphology and taxonomy. Focuses on insect natural history, comparative anatomy and classification. Representative types examined in the laboratory provide an understanding of current trends in insect taxonomy and phylogeny.

Prerequisite(s): BIOL 120 and 121 and 3 additional credit units of senior BIOL courses; or permission of the instructor.

Note: Students are required to make a collection of insects and may wish to begin the collection over the summer prior to the course. In that case, contact the instructor for details and supplies pertaining to the insect collection.

BIOL 373.3 — 1(3L-3P)**Community Ecology— Not scheduled to be offered on campus in 2012-13**

Examines physical and biotic factors shaping species assemblages over space and time, especially processes controlling plant communities (e.g. environmental factors, disturbance, and biotic interactions). Explores current issues in community ecology, such as impacts of diversity loss, invasive species, and environmental change. Laboratories focus on experimental design, data collection and analysis.

Prerequisite(s): BIOL 228 or PLSC 213; one of STAT 245, STAT 246 or PLSC 213

BIOL 398.3 or 399.6 — 1/2(3S)**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

BIOL 410.3 — 2(2.5S)**Current Perspectives in Environmental Biology**

Consists of modules taught by faculty in the environmental sciences. Students will participate together in weekly seminars, assigned readings, essays and oral presentations to learn about current issues in the environment and cutting-edge research with an environmental focus.

Prerequisite(s): BIOL 228, 301 and permission of the Department.

BIOL 412.3 — 1(3L-4P)**Limnology**

Introduction to the ecology of lakes. The biological, chemical and physical properties of lakes are examined at lake and watershed levels. Theoretical and applied topics, including human impacts (e.g., eutrophication, climate change, ultraviolet radiation, contaminants, and angling) are examined. Laboratories and field trips provide training in limnological techniques.

Prerequisite(s): BIOL 121, 228 (or 253) and CHEM 112; a course in statistics is recommended; or permission of the instructor.

Note: Students with credit for BIOL 415 may not take this course for credit. There will be costs for a field trip in addition to tuition fees.

BIOL 420.3 — 1(3L-4P)**Molecular Biology of Plants– Not scheduled to be offered on campus in 2012-13**

A study of the molecular biology of plants: nuclear and plastid genomes, coordination of expression between nuclear and plastid genomes, transposable elements, abiotic stress and hormonal effects on gene expression and plant transformation.

Prerequisite(s): BIOL 121, 222 (or 202 or 205) and one of BIOL 226 (or 211) or BIOC 230; and 3 additional credit units of senior BIOL courses; or permission of the instructor.

BIOL 421.3 — 1(1L-6P)**Functional Genomics– Not scheduled to be offered on campus in 2012-13**

A practical course that will provide students with the background, experience and understanding of modern molecular biology as it pertains to the biological sciences. Emphasis will be placed on utilizing large, publicly available datasets to generate and test hypotheses about how organisms function at the molecular level. A single research theme will be used in the lab for investigation of biological processes in model organisms, extending into non-model species.

Prerequisite(s): BIOL 316 or BIOC 311 or MCIM 391; BIOL 301 is recommended. Permission of the department is required.

Note: There will be costs for a lab materials in addition to tuition fees.

BIOL 424.3 — 2(3L-4P)**Grasses and Grasslands**

A study of the morphology, systematics, biogeography, synecology and autecology of the grasses and other graminoids, and ecology of grasslands. Laboratory emphasis is on the structure and taxonomy of grasses.

Prerequisite(s): BIOL 121 and 222 (or 202 or 205); BIOL 228 (or 253) is recommended; or permission of the instructor.

BIOL 430.3 — 2(3L-4P)**Neurobiology of Behaviour**

Studies how activities in an animal's nervous systems produces and modifies natural behaviour. Topics in the course include: the detection and coding of information from the environment, integration of information for decision-making, generation of motor patterns that underlie behaviour, and general constraints on form and function of neural circuits.

Prerequisite(s): BIOL 317 or HSC 208 or (VBMS 212); or permission of instructor.

BIOL 436.3 — 2(3L-3P)**Animal Parasitology**

Deals with helminths, arthropods and protozoa of people, domestic and wild animals, and birds. Examples from these parasite and host types will be used to illustrate important concepts, including basic structure and function, life cycles, ecology, biogeography, individual and population level host-parasite-environment relationships, epizootiology and parasite control strategies.

Prerequisite(s): BIOL 121 and 9 additional credit units of senior BIOL courses; BIOL 302 (or 401) is recommended; or permission of the instructor.

BIOL 451.3 — 1(3L-4P)**Ichthyology**

The biology of fishes including their morphological diversity, physiology, behaviour and ecology, and their management and utilization.

Prerequisite(s): BIOL 121 and 224 (or 203) and 228 (or 253); BIOL 302 (or 401) is recommended.

BIOL 455.3 — 2(3L-4P)**Mammal Diversity and Evolution– Not scheduled to be offered on campus in 2012-13**

Introduction to local and world mammal faunas, including living and extinct taxa. Evolution, behaviour, ecology, morphology, phylogeny, and physiology will be emphasized in lectures. Laboratories will be concerned with classification, identification, and anatomical adaptations.

Prerequisite(s): BIOL 121 and 224 (or 203) and 228 (or 253); BIOL 302 (or 401) is recommended.

BIOL 458.3 — 1(3L-4P)**Ornithology**

Introduction to the diversity of birds of the world. Lecture material focuses on evolution, ecology, behaviour, physiology and conservation. Laboratories focus on morphological diversity and taxonomy.

Prerequisite(s): BIOL 121 and 224 (or 203) and 228 (or 253); BIOL 302 (or 401) is recommended.

BIOL 466.3 — 1(3L-4P)**Aquatic Insects**

Identification of aquatic insects, discussions of current literature, field trips, collections, and laboratory work.

Prerequisite(s): BIOL 121 and 224 (or 203) and 228 (or 253); or permission of the instructor.

Note: Students are advised to contact the instructor about making a collection of insects the summer before enrolling in the course.

BIOL 470.3 — 1(3L-4P)**Conservation Biology– Not scheduled to be offered on campus in 2012-13**

An introduction to the theoretical and scientific foundation of conservation biology as applied to animals and plants. Course material will cover elements of population, community and landscape ecology as they apply to conservation challenges. Labs will include measuring biodiversity and analysis of current conservation issues. Field trips are compulsory.

Prerequisite(s): BIOL 228 (or 253) and 302 (or 263 or 401) or permission of the instructor.

Note: There will be costs for a field trip in addition to tuition fees.

BIOL 472.3 — 2(3L-4P)**Animal Behaviour**

Fundamental concepts in animal behaviour. An introduction to the form, control and adaptive significance of animal behaviour.

Prerequisite(s): BIOL 228 (or 253) and 302 (or 263 or 401).

BIOL 475.3 — 1/2(3L-3P)**Ecological Toxicology– Not scheduled to be offered on campus in 2012-13**

An introduction to the principles of ecological toxicology, including: population modelling, experimental design and interpretation of field studies, and contaminant impact assessment on populations, communities and ecosystems. Computer laboratory exercises will be used to model populations and ecosystems and analyze changes in populations and communities resulting from contaminant impacts.

Prerequisite(s): BIOL 120 and 121 and 228 (or 253) and 6 additional credit units of senior BIOL courses and a course in statistics; TOX 301 is recommended; or permission of the instructor.

BIOL 480.3 — 1/2(6P)**Biology Research**

The student will work on a laboratory or field project under the supervision of a faculty member. Before beginning, the student must obtain a supervisor and then submit an outline of the project for approval by the Head of the Department. At the end of the project, the student will submit to the department a written report in thesis form.

Prerequisite(s): BIOL 301 (may be taken concurrently) and permission of the instructor. Restricted to fourth year biology students with a Cumulative Weighted Average of 70% or better.

Note: Honours Agriculture Biology students may not take both this course and AGRC 494. Those in College Scholar Programs may not take this course in addition to another laboratory or field project designed under the Program.

BIOL 481.6 — 1&2(6P)**Extended Research Project in Biology**

Laboratory and/or field project under the supervision of a faculty member. Student must obtain a supervisor who submits course outline (syllabus) to the Department Head. Written reports and an oral presentation will be required.

Prerequisite(s): BIOL 301 (may be taken concurrently) and permission of the instructor. Restricted to fourth year Biology students with a minimum C.W.A. of 70% in Biology.

Note: Students must consult and discuss their research interests with a potential supervisor before registering for this course, preferably in the spring or early summer. Students with credit for BIOL 480 or BIOL 499 Special Topics Extended Research Project cannot take BIOL 481 for credit. Agricultural Biology students may not take both BIOL 481 and AGRC 494 for credit. Those in College Scholar programs may not take this course in addition to another laboratory or field project designed under the program.

BIOL 498.3 or 499.6 — 1/2(3S)**Special Topics**

Offered occasionally by visiting faculty and in other special situations to cover, in depth, topics that are not thoroughly covered in regularly offered courses.

NOTES FOR ADVISORS:

BIOL 401.3 was offered as BIOL 498.3 (Evolutionary Biology) in 2008-09. Students with credit for BIOL 498 cannot also receive credit for BIOL 302.3 (Evolutionary Processes). Advisors are also reminded that senior students with the appropriate backgrounds can register in 800-level graduate courses with permission..

DRAFT 2012-2013 BIOL COURSE SCHEDULE (May 1, 2012)

TERM 1 (Fall – September 2012)

MWF Lectures			TTh Lectures		
8:30	BIOL 226 BIOL 331	CHEM 112	8:30	BIOL 420 BIOL 342 BIOL 323 BIOL 472	CHEM 112
9:30	BIOL 470 BIOL 317	CHEM 112 CHEM 115 BMSC 200	10:00	BIOL 120 BIOL 301 BIOL 318 - <i>this year only</i>	CHEM 112 BMSC 220
10:30	BIOL 120 BIOL 228 BIOL 316 BIOL 451		11:30	BIOL 121 BIOL 412	BMSC 200
11:30	BIOL 302	MATH 125	1:00	BIOL 120 <i>ARTS 143</i>	
12:30	BIOL 224 BIOL 365/466 BIOL 455		THURS AM LAB 8:30-11:20 BIOL 228		

MON LAB	TUES LAB	WED LAB	THURS LAB	FRI LAB
BIOL 228 <i>rm 212</i> BIOL 301 <i>rm 123/124</i> BIOL 472 <i>rm 307</i> BIOL 342 <i>rm 307</i> BIOL 420 <i>rm 213</i> MATH 125	BIOL 228 <i>rm 212</i> BIOL 455 <i>rm 123/124</i> BIOL 318 <i>one year only rm 213</i> BIOL 412 <i>rm TBA</i>	BIOL 228 <i>rm 212</i> BIOL 301 <i>rm 123/124</i> BIOL 316 <i>in 213</i> BIOL 323 <i>in Ag4C77</i> BIOL 451 <i>rm 307</i>	BIOL 301 <i>123/124</i> BIOL 302 <i>rm 212</i> BIOL 317 <i>G74B</i> BIOL 331 <i>G74A</i> BIOL 365/466 <i>rm 213 for one year, Reverting to tues PM in 2013</i>	BIOL 302 <i>rm 212</i> BIOL 317 <i>G74B</i> BIOL 331 <i>G74A</i> BIOL 470 <i>rm 307</i>

TERM 2 (Winter – January 2013)

MWF Lectures			TTh Lectures		
8:30	BIOL 120 BIOL 226	CHEM 115 BMSC 200	8:30	CHEM 115	
9:30	BIOL 121 BIOL 324 BIOL 318/430	CHEM 112 BMSC 230	10:00	BIOL 120 BIOL 345 BIOL 458 TOX 301	
10:30	BIOL 121 BIOL 325/326 BIOL 475		11:30	BIOL 361 BIOL 410	BMSC 230
11:30	BIOL 222 BIOL 436 BIOL 424				
12:30	BIOL 224 BIOL 363/373				

MON LAB	TUES LAB	WED LAB	THURS LAB	FRI LAB
BIOL 436 <i>rm 218</i> BIOL 424 <i>in Ag</i>	BIOL 345 <i>rm 218</i> BIOL 458 <i>rm 123/124</i>	BIOL 361 <i>rm 218</i> BIOL 475 <i>rm 212</i> BIOL 325/326 <i>rm 227</i>	BIOL 318/430 <i>G74B</i> BIOL 324 <i>B218</i> BIOL 363/373 <i>B212</i> BIOL 421 <i>Ag 2D88</i>	BIOL 421 <i>Ag 2D88</i>

Courses high-lighted in grey are not offered in 2012-13.

Lab Schedules for BIOL 120, 121, 222, 224, & 226, not shown; each has multiple lab sections. **NOTE:** This schedule subject to change. Consult PAWS course registration guide for final course scheduling information.

Spring & Summer Session BIOL Course Offerings

BIOL 120.3 Nature of Life	May 9 to May 30 (Q1)	On Campus
BIOL 121.3 Diversity of Life	June 4 to June 22 (Q2)	On Campus
BIOL 222.3 Living Plant	July 24 to Aug 14 (Q4)	On Campus
BIOL 224.3 Animal Body Systems	May 9 to May 30 (Q1)	On Campus
BIOL 226.3 Genes to Genomics	June 28 to July 19 (Q3)	On Campus
BIOL 228.3 Ecology and Ecosystems	June 4 to June 22 (Q2)	On Campus

Registration is open now for spring & summer session.

The website for more information is:

<http://students.usask.ca/current/registration/spring-summer.php>

Courses Equivalent to BIOL 2012-13

Note: These are subject to change – official calendar descriptions will be available in summer through the online University course calendar. Final course offerings will be available through the PAWS registration guide in mid summer.

These courses must be listed under C6 Requirements on the Program Monitor Form and can also be used in meeting the requirements of a BIOL Minor.

Courses Equivalent To BIOL Calendar Descriptions

Note: These must be included under Requirement C6 on program monitor forms.

ACB 200.3
Introduction to Cell Biology
Replaced by BMSC 220.3

ACB 406.3 -1(2L- 3P)
Comparative Vertebrate Histology
An introduction to the basic tissues common to vertebrates. This course investigates how these tissues have been organized into organs and organ systems in basal chordates, fish, reptiles, amphibians, birds and mammals during evolution.
Prerequisite(s): BMSC 200.3 and BMSC224.3/BIOL224.3

ANSC 313.3 — 2(3L- 2P)
Animal Breeding and Genetics
Qualitative and quantitative genetics applied to animal improvement. Principles and systems of selecting and breeding domestic animals. Introduction to molecular genetics related to animals.
Prerequisite(s): 6 cu of BIOL

ANSC 470.3 — 1(3L-4P)
Applied Animal Biotechnology
Covers reproductive technologies; transgenic techniques; molecular genetics in animal selection; use of recombinant proteins for growth, lactation and reproduction; immunological modulation of animal production; improvement of feeds and rumen organisms; improvement of health. In addition, ethical and safety aspects will be considered. Emphasizes the application and impact of biotechnological techniques on animal production.
Prerequisite(s): ANSC 313 and VBSM 324

ARCH 270.3 — 1(3L-3P)
Human Evolution
An introductory overview of human biology including the background for evolutionary biology, and the evolution, structure, and function of certain primate patterns.
Formerly: ANTH 270.
Prerequisite(s): ARCH 112 or BIOL 120 and 121 (strongly recommended). It is expected that students will have had Biology 30 with a laboratory, or BIOL 107.

BINF 200.3 — 2(3L-1.5P)
Introduction to Bioinformatics
An introduction to resources and basic techniques for the analysis of protein and DNA data. Students will become familiar with online DNA and protein structure databases, and with the computational methods available for analyzing data in them and with the application of databases and search tools to biological problems.
Prerequisite(s): CMPT 111, BMSC 200.

BMSC 210.3 – 2(3L)
Microbiology
An introduction to the structure, physiology, genetics and pathogenicity of microorganisms. Topics include the structure and composition of bacteria and viruses, bacterial growth, genetics, and regulation, the role of microorganisms in disease, and an introduction to the immune system.
Prerequisite(s): BIOL 120.3; BMSC 200.3
Note: Students with credit for MICR 214 may not take this course for credit.

BMSC 220.3 - 1/2(3L)
Cell Biology
An introduction to the biology of eukaryotic cells. Topics include organization of eukaryotic chromosomes; the flow of genetic information from nucleus to cytoplasm; cellular membranes and organelles; control of cell division; and signaling between cells. Contrasts between eukaryotic cells and prokaryotic microbial cells will be discussed, as well as distinctions between plant and animal cells.
Prerequisite(s): BIOL 120.3; BMSC 200.3
Note: Students with credit for ACB 200.3 may not take this course for credit.

FABS 212.3 — 1(3L-2P)
Agrifood and Resources Microbiology
An introduction to the general biology of microorganisms with emphasis on those of agri-food, economic and environmental importance. Microbial morphology, metabolism, growth and genetics; infectious disease and immunity; environmental microbiology and waste water treatment; agricultural microbiology; food and industrial microbiology. Laboratory practice in basic microbiological techniques and their application to the study of microbial activities.
Prerequisite(s): BIOL 120 and 121; CHEM 112 and 250 (may be taken concurrently).
Note: Students with credit for FAMS 212, MICR 214 or APMC 212 may not take this course for credit.

FAMS 212.3
Agrifood and Resources Microbiology
Replaced by FABS 212.3

GEOL 343.3 — 1(3L-3P)
Sedimentary Environments
The history of the facies concept; sedimentary environments and facies; techniques of facies analysis; modern environments of deposition; interpretation of ancient sedimentary environments; sedimentary facies through geological time; sedimentary facies, sea level, and tectonics.
Prerequisite(s): GEOL 247 (or 246) and GEOL 308.
Note: This course may be taught as a field course, and thus will be costs additional to

tuition fees.

GEOL 433.3 — 2(3L)
Evolution of Vertebrates
The geological history of the principal groups of vertebrates, with emphasis on palaeontological general morphology and evolutionary relationships.
Prerequisite(s): GEOL 247 or permission of the department.

GEOL 435.3 — 1/2(3L-3P)
Microfossils
No longer offered

GEOL 437.3 — 1/2(2L -2P)
Palaeoecology
No longer offered

GEOL 439.3 — 1(3L- 3P)
Palaeobotany
No longer offered

MCIM 214.3
Basic and Medical Microbiology
Replaced by BMSC 210.3.

MCIM 387.3 — 1(3L - 1T)
Microbial Genetic Systems
Bacterial and bacteriophage genetic systems will be dissected with a view to understanding their genomes, gene regulation, replication, mutagenesis, repair, and recombination, and their practical use as tools for molecular genetics experimentation and biotechnology.
Formerly: MICR 386.
Prerequisite(s): MCIM 326.3.
Note: Recommended to be taken concurrently with MCIM 391, BIOL 226 recommended. Students with credit for MICR 386 may not take MICR 387 for credit. Students with credit for MICR 387 may not take this course for credit.

PLSC 405.3 — 2(3L-2P)
Genetics of Plant Populations
Application of the principles of Mendelian, population and quantitative genetics to plant evolution and improvement, and conservation of genetic resources. The role of genetic mechanisms in the micro-evolutionary process and their relevance to natural and directed plant evolution and conservation of plant genetic resources is examined.
Prerequisite(s): BIOL 226 (formerly BIOL 211)

PLSC 411.3 — 2(3L-3P)
Plant Breeding
Familiarizes students with the fundamental aspects of plant breeding, including applied plant genetics, breeding objectives and methods, selection theory and practice, and modern genetic techniques. Labs involve hands-on plant breeding activities.
Prerequisite(s): PLSC 405 or permission of the instructor.

PLSC 412.3 Physiological Plant Ecology

No longer offered.

PLSC 416.3 — 2(3L-2P)

Applied Plant Biotechnology

Introduces techniques of biotechnology which have the potential to be utilized in plant improvement. Includes wide hybridization, cytoplasmic male sterility, tissue and cell culture, protoplast fusion and gene transfer at the DNA level.

Prerequisite(s): PLSC 240, BIOL 222 and 226

PLSC 422.3 — 1(3L-2P)

Rangeland Ecology and Management

Principles of managing rangeland to ensure sustained productivity and multiple-uses.

Inventory, evaluation and planning for multiple-use management. Plant morphology and physiology, palatability, energy flow, nutrient cycling and the hydrologic cycle are integrated and discussed in relation to impacts of grazing on the soil-plant-animal system and development of grazing systems.

Prerequisite(s): BIOL 253 or PLSC 213.

PLSC 423.3 — 2(3L-2P)

Landscape Ecology and Vegetation Management

Current theories relating to structure, functioning, and composition of landscapes and human impacts on natural ecosystems, landscape-level processes and patterns, and succession. Developing management plans for natural and remnant landscape elements, and inducing successional changes, and monitoring impacts will be covered. Field trips will be required.

Prerequisite(s): One of BIOL 228, GEOG 270 or PLSC 213 or permission of the instructor

PLSC 425.3 — 2(3L-3P)

Forest Ecology

Study of tree physiology, the forest environment, dynamics of the composition, structure and functioning of forest ecosystems at multiple spatial and temporal scales. Emphasis is placed on forest ecosystems of Canada.

Prerequisite(s): One of PLSC 213, BIOL 228 or GEOG 270

Note: Offered in odd years.

TOX 300.3 — 1(3L)

General Principles of Toxicology

An introduction to the general principles of toxicology. Salient topics include: dose-response relationships, toxicokinetics, target toxicity, mechanisms of toxic action, general principles of toxicity testing, and mechanisms of action of antidotes.

Formerly: VBMS 300.

Prerequisite(s): HSC 208 or BIOL 217 and 318. Open to all students.

Note: Students with credit for VBMS 300 may not take this course for credit.

TOX 301.3 — 1/2(3L)

Environmental Toxicology

A discussion of major environmental pollutants, their sources, interactions with atmospheric, terrestrial and aquatic systems, exposure of people, animals and other biota, and their dose-response relationships. Some of the physical and chemical changes induced in the environment by pollutants, contaminant fate and transport, and bioremediation are also discussed.

Prerequisite(s): BIOL 120 and 121 and CHEM 112.

Relevant Cognate Science Course Descriptions 2012-13

Note: These are subject to change – official calendar descriptions will be available in summer through the online University course calendar. Final course offerings will be available through the PAWS registration guide in midsummer.

Relevant Cognate Courses

Note: These must be included under Requirement C1, C4 or C7 on program monitor forms as indicated.

For those indicated as an "option", courses other than those listed may be used to meet program requirements. Consult the course calendar for suitable replacements.

BIOC 200.3

Molecules of Life

Replaced by BMSC 200.3

BIOC 211.3

Introductory Metabolism

Replaced by BMSC 230.3

BIOC 300.3 — 2(3L)

Information Transfer DNA to Proteins

Deals with the structure and function of nucleic acids at an advanced level.

Chromosome anatomy, DNA replication, transcription of genes, and translation of mRNA in both prokaryotes and eukaryotes are covered. The various mechanisms whereby gene expression is regulated are also discussed.

Formerly: BIOC 300.

Prerequisite(s): BMSC 200.

BMSC 200.3 – 1/2(3L)

Biomolecules

An introduction to the structures, general properties, and functions of simple and complex biomolecules: amino acids, peptides, proteins, enzymes, carbohydrates, lipids and nucleic acids as well as membranes and solute transport. **Prerequisite(s):** Biology 30, CHEM 112

Students with credit for BIOC 200.3 may not take BMSC 200.3 for credit.

BMSC 230.3 – 2 (3L)

Metabolism

An introduction to the thermodynamic aspects of energy metabolism and the principles of anabolic and catabolic metabolic pathways. Emphasis will be placed on the overall purpose of the major pathways, the precursor molecules leading into these pathways, the important pathway products and the basic types of control that regulate metabolic flux. Examples in prokaryotic systems will be provided where possible.

Prerequisite(s): BIOL 120.3; BMSC 200.3

Note: Students with credit for BIOC 211.3 may not take this course for credit.

CHEM 112.3 — 1/2(3L-3.5P)

General Chemistry I Structure Bonding and Properties of Materials

Structure, bonding and properties of materials. Topics include atoms and molecules, bonding, molecular structure, intermolecular forces, states of matter, and properties of materials such as polymers, natural and synthetic materials, biomaterials,

proteins, nucleic acids, carbohydrates, conductors, semiconductors, and insulators. The laboratory illustrates material covered in the lectures. **Prerequisite(s):** Chemistry 30 and Mathematics B30 (or Algebra 30). Mathematics C30 (or Geometry-Trigonometry 30) is strongly recommended. **Note:** Students with credit for CHEM 111 or 114 may not take this course for credit.

CHEM 115.3— 1/2(3L-3P)

General Chemistry II Chemical Processes

Chemical reactions, including the rates and energetics of reactions and specific types of reactions. Topics include stoichiometry, chemical reactions, chemical kinetics, equilibrium, specific reactions, and thermodynamics.

Prerequisite(s): CHEM 111, 112 or 114.

Note: The introductory CHEM courses were changed in 2002. Students with credit for CHEM 111 may take CHEM 115.

CHEM 250.3 — 1/2(3L-3P-1T)

Introduction to Organic Chemistry

An introduction to organic chemistry; students will learn to name organic compounds, predict some of the properties and reactivity of compounds based on molecular structure, and grasp the importance of these concepts and their application to all sciences and life in general. Almost all the reactions in living matter involve organic compounds, and it is impossible to understand the molecular processes of living systems without knowing organic chemistry. CHEM 250.3 is intended as a basis for other courses, and a beginning for understanding organic and bio-organic chemistry. The laboratory will introduce students to basic chemical laboratory skills frequently used in organic chemistry.

Prerequisite(s): CHEM 112 or 114.

Note: The introductory CHEM courses were changed in 2002. Students with credit for CHEM 111 may take CHEM 250. Students with credit for CHEM 251 may not take CHEM 250 for credit.

CHEM 375.3 — 1/2(3L-3P)

Pollution Waste Disposal and Environment

The disposal and treatment of waste materials will be discussed in terms of their effect on the gaseous and aqueous environments. A series of problems designed to illustrate the material covered in each topic will be assigned. The laboratory sessions are designed to give some understanding of how tests for environmental quality are carried out in the field and in the laboratory.

Prerequisite(s): CHEM 115.

MATH 125.3— 1(3L-1.5P)

Mathematics for the Life Sciences

An introduction to mathematical modeling with a focus on applications to the life sciences. Topics include: algebraic functions and their graphs, limits and rates of change, differentiation techniques and applications, exponential and logarithmic functions,

integration and the area under a curve, introduction to differential equations. The main feature of this course is the use of structured examples from life sciences to establish a need for mathematical techniques. Necessary mathematical terms and concepts will be developed. The emphasis throughout this course is on applications of mathematics to life sciences with just enough theory to support applications. Extensive examples from Biology, Health, Chemistry and Physics will be used.

Prerequisite(s): Mathematics A30, B30 and C30.

Note(s): Students may receive credit for only one of MATH 101, 110, 121, 123, or 125.

MATH 125 is recommended for BIOL majors, although MATH 110.3, 112.3, 115.3, 116.3, or 264.3 can still be used to meet the C4 requirements.

PLSC 314.3 — 1/2(3L-2P)

Statistical Methods

An introduction to statistical methods and their application to experiments. Includes probability, means and variances, t tests, analysis of variance, experimental designs, simple regression and correlation, and chi-square tests. Designed for students in the biological sciences.

Note: Students wishing to use this course for Arts & Science credit should refer to Statistics Course Regulations in the Arts & Science section of the Calendar.

STAT 245.3 — 1/2(3L-1P)

Introduction to Statistical Methods

An introduction to basic statistical methods including frequency distributions, elementary probability, confidence intervals and tests of significance, analysis of variance, regression and correlation, contingency tables, goodness of fit.

Prerequisite(s): MATH 100, 101, 102, 110 or STAT 103.

Note: Does not meet requirements for major or honours programs in either mathematics or statistics. Students are not permitted to take more than one of STAT 242, 244, 245, 246 or other introductory statistics courses for credit. See Statistics Course Regulations in the Arts & Science section of the Calendar.

STAT 246.3 — 1/2(3L-2P)

Introduction to Biostatistics

An introduction to statistical techniques with emphasis on methods particularly applicable to biological and health sciences. Topics include: descriptive statistics, estimation and hypothesis testing, linear and logistic regression, contingency tables, life tables, and experimental design. Computerized data analysis will be an essential component of the labs.

Prerequisite(s): MATH B30 and BIOL 102 & 121 or permission of the department. One of MATH 101.3, 110.3 or STAT 103.3 is recommended but not essential. Students may receive credit for only one of STAT

242, 244, 245, or 246.

Note: See Statistics Course Regulations in the Arts & Science section of the Calendar.

NOTE: *PHYS 111.6 and 121.6 have been deleted and replaced by several 3 c.u. courses effective September 2008.*

These courses may be used to meet the C1 Natural Science Requirements or listed under C7 Electives.

PHYS 115.3 — 1(3L-1.5P-1T)

Physics and the Universe

Provides the first part of an introduction to physics. Emphasis is placed on mechanics, electric and magnetic fields, electric currents and circuits, and the physics of atoms and particles. The course concludes with a discussion of our current understanding of the history of the universe and a discussion of the frontiers of our current understanding

of the physical world. Some applications of physics in technology and the health sciences are also discussed.

Prerequisite(s): Mathematics B30 and C30 (Algebra 30 and Geometry-Trigonometry 30), Physics 30.

Note: Students with credit for PHYS 111 or 121 may not take this course for credit.

PHYS 117.3 — 2(3L-1.5P-1T)

Physics for the Life Sciences

Introduces students to aspects of physics which are of particular relevance for the health and life sciences. This course can be used as the second part of an introduction to physics. Topics include torque and angular momentum, fluid mechanics, oscillations and waves, thermal physics, optics, and nuclear physics. Emphasis is placed on bio-medical applications of physics.

Prerequisite(s): PHYS 115

Note: Students with credit for PHYS 111 or

121 or 128 may not take this course for credit. Students can only get credit for one of PHYS 117 and PHYS 125.

PHYS 125.3 — 2(3L-1.5P-1T)

Physics and Technology

Introduces students to aspects of physics with an emphasis on applications in technology and the physical sciences. This course can be used as the second part of an introduction to physics. Topics include torque and angular momentum, fluid mechanics, oscillations and waves, optics, special relativity, and nuclear physics.

Prerequisite(s): MATH 110; PHYS 115 or GE 124

Note: Students with credit for PHYS 111 or 121 or 128 may not take this course for credit. Students can only get credit for one of PHYS 117 and PHYS 125.

OLD BIOL & BSc PROGRAM REQUIREMENTS

2004-05 University Calendar Descriptions

NOTES:

- Students enrolled in BIOL 120 or BIOL 121 as of September 2007 are required to complete the NEW BIOL program requirements. Use the “New” BSc program monitor form for these students.
- Students enrolled in BIOL courses prior to Sept 2007 may elect to complete the “Old” or “New” BIOL program requirements.
- The NEW BSc program monitor form is to be used for students who were first enrolled in the College of Arts & Science in September 2005.
- The OLD BSc program monitor form is to be used for students enrolled in the College of Arts & Science prior to September 2005 and if the student elects to complete these requirements.

BIOL COURSE SUBSTITUTIONS

The following list of course substitutions for students completing the OLD BIOL program requirements were approved by the Department of Biology faculty at a meeting held February 7, 2008.

Old BIOL Course Requirement	Substitution Course(s)
BIOL 203.6 Animal Structure and Function	BIOL 224.3 Animal Body Systems <u>or</u> BIOL 217 Introductory Animal Physiology* plus one of BIOL 302.3 Evolutionary Processes BIOL 318.3 Comparative Systems Physiology BIOL 361.3 Vertebrate Biology BIOL 365.3 Insect Diversity & Evolution BIOL 401.3 or 498.3 Evolutionary Biology BIOL 436.3 Animal Parasitology BIOL 451.3 Ichthyology BIOL 455.3 Mammalogy BIOL 458.3 Ornithology * BIOL 224 & 217 may not be both taken for credit
BIOL 204.3 Survey of Bacteria Algae and Fungi	BIOL 342.3 Fungi Environment And People <u>or</u> MICR 214.3 Basic and Medical Microbiology <u>or</u> BMSC 210.3 Microbiology <u>or</u> FAMS 212.3 Agrifood and Resources Microbiology
BIOL 205.3 Survey of Land Plants	BIOL 222.3 The Living Plant
BIOL 211.3 Genes to Genomics	BIOL 226.3 Genes to Genomics
BIOL 253.3 Ecosystems <u>or</u> BIOL 263.3 Population Biology	BIOL 228.3 Intro to Ecology & Ecosystems
One of ACB 200.3 Cell Biology <u>or</u> BIOL 217.3 Intro Animal Physiology <u>or</u> BIOL 331.2 Plant Physiology	ACB 200.3 or BMSC 220.3 or BIOL 317.3 or BIOL 331.3
BIOL 350.3 Field Course	BIOL 350.3 Field Course (same course)
BIOL 414.3 Perspectives in Biology	BIOL 301.3 Critical Thinking

Biology Program in the 2004-2005 Calendar

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Major in Biology (B.Sc. Four-year)

Required courses: BIOL [110.6](#), [203.6](#), [204.3](#), [205.3](#), [211.3](#); one of BIOL [253.3](#) or [263.3](#); one of ANAT [200.3](#), BIOL [217.3](#) or [331.3](#); 9 additional approved credit units in biology; BIOCH [200.3](#) and 3 credit units senior BIOCH OR CHEM; CHEM [112.3](#), [115.3](#) and 3 credit units senior CHEM.

Students must ensure that their electives fulfill Requirements 2-5 in Program Type C.

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Major in Biology (B.Sc. Three-year)

Required courses: BIOL [110.6](#), [203.6](#), [204.3](#), [205.3](#); two of: BIOL [211.3](#), [253.3](#), [263.3](#), ANAT [200.3](#), either BIOL [217.3](#) or [331.3](#); 6 additional credit units in BIOL; CHEM [112.3](#), [115.3](#) and 3 credit units senior CHEM.

Students intending to major in biology are strongly advised to take CHEM [112.3](#), [115.3](#), before, or concurrently with, BIOL [110.6](#).

Students must ensure that their electives fulfill Requirements 2-5 in Program Type C.

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Honours in Biology

The Honours Program in Biology is designed to permit specialization in various fields. The required courses are: BIOL [110.6](#), [203.6](#), [204.3](#), [205.3](#), [211.3](#), [350.3](#), [414.3](#); one of BIOL [253.3](#) or [263.3](#); one of ANAT [200.3](#), BIOL [217.3](#) or [331.3](#); PL SC [314.3](#)* or another senior 3 credit-unit course in statistics and 18 additional credit units in biology which must be approved by the department. Other requirements are CHEM [112.3](#), [115.3](#) and 3 credit units of senior CHEM; BIOCH [200.3](#) and 3 credit units senior BIOCH or CHEM; and 9 credit units selected from CMPT [111.3](#), [115.3](#), GEOG [120.3](#), GEOL [121.3](#), [122.3](#), MATH [110.3](#), [112.3](#) or [116.3](#), PHYS [111.6](#) or [121.6](#). No more than 6 credit units in geography may be used for this requirement. It is recommended that students intending to do graduate work obtain a reading knowledge of a second language. **A comprehensive honours oral examination will be given in the fourth year.**

Students are advised to register for the following courses:

Year 1

BIOL [110.6](#), CHEM [112.3](#), [115.3](#) (students intending to go on in biology are strongly advised to take these chemistry courses before, or concurrently with, BIOL [110.6](#) since CHEM [112.3](#) and [115.3](#) are prerequisites for some senior courses in biology), and 18 other credit units.

Year 2

At least 12 credit units in biology, BIOCH [200.3](#) and 3 credit units senior BIOCH or senior CHEM.

Other courses to a total of 30 credit units.

Year 3

15 credit units in biology, PL SC [314.3](#)* or another senior 3 credit unit course in statistics, and 12 other credit units.

Summer of Year 3

Honours Field Course BIOL [350.3](#).

Year 4

BIOL [414.3](#), 12 other credit units in biology, and 15 other credit units.

Students must ensure that their electives fulfill Requirements 2-5 in Program Type C.

*STATS [242.3](#), [245.3](#) and [246.3](#) also meet this requirement.

Students intending to enter the honours program should discuss their program with the Head of the Department before planning their second year.

Students in the fourth year should note that 800-level Biology courses may be taken with permission of the department.

It is recommended that students specializing in biology attend seminars regularly.

With the approval of the department, certain courses offered by other departments may be counted as biology courses in a major or honours program. Courses accepted without special approval are listed at the end of this section.

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Double Honours

For Double Honours in Biology and another subject, students will require the following Biology courses: BIOL [110.6](#), [203.6](#), [204.3](#), [205.3](#), [211.3](#), [350.3](#), [414.3](#); BIOL [253.3](#) or [263.3](#); [217.3](#) or [331.3](#) or ANAT [200.3](#); PL SC [314.3](#) or an equivalent statistics course. Students also require CHEM [112.3](#), [115.3](#) and 3 credit units senior CHEM, BIOCH [200.3](#) and 3 credit units senior BIOCH or senior CHEM, and 9 credit units selected from CMPT [111.3](#), [115.3](#), GEOG [120.3](#), GEOL [121.3](#), [122.3](#), MATH [110.3](#), [112.3](#) or [116.3](#), PHYS [111.6](#) or [121.6](#). No more than 6 credit units in geography may be used for this requirement. **A comprehensive oral examination in biology will be given in the fourth year.**

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Agricultural Biology

Students are reminded of the possibility of majoring in biology in the College of Agriculture under the Agricultural Biology Option. Consult the section on Fields of Specialization in the College of Agriculture, and the program advisor in the Department of Biology.

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Major in Biology & Biotechnology (B.Sc. Four-Year)

Program requirements:

1. BIOL [110.6](#); CHEM [112.3](#), [115.3](#) and 3 credit units of senior CHEM; 6 credit units of approved Natural Sciences chosen from PHYS [111.6](#); MATH [110.3](#), [112.3](#) or [116.3](#); GEOG [120.3](#); GEOL [121.3](#), [122.3](#); CMPT [111.3](#), [115.3](#) (PHYS [111.6](#) is recommended).
2. 24 credit units in core Biotechnology courses: ANAT [200.3](#); BIOCH [200.3](#), [212.3](#), [230.3](#), [311.3](#) or MICRO [391.3](#); BIOL [211.3](#), [316.3](#); MICRO [214.3](#) or AP MC [212.3](#).
3. BIOL [203.6](#), [204.3](#), [205.3](#), one of BIOL [253.3](#) or [263.3](#); 9 additional approved credit units in Biology.
4. PHIL [236.3](#) plus additional courses such that (a) and (b) are satisfied as follows:
 - a) 9 credit units are taken from SOC [292.3](#), [323.3](#); AG EC [292.3](#); POLST [362.3](#); COMM [345.3](#), [346.3](#), BTECH [301.3](#). [SOC [292.3](#), [323.3](#); AG EC [292.3](#); POLST [362.3](#) may be used in distribution requirements 3 or 5 of a Type C program].
 - b) 39 additional credit units are taken such that type C distribution requirements 2-5 are satisfied, with the recommendation that 6 of these credit units are chosen from the courses listed in (a) and/or from HIST [284.3](#).

Note: COMM [345.3](#) and [346.3](#) cannot be used in Type C distribution requirements.

Arts & Science Biotechnology students who wish to take AG EC 292.3, COMM [345.3](#) or COMM [346.3](#) as part of their program must contact the Virtual College of Biotechnology for permission, Tel: 306-966-2209.

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Honours in Biology & Biotechnology

Program Requirements:

1. BIOL [110.6](#); CHEM [112.3](#), [115.3](#) and 3 credit units of senior CHEM; 6 credit units of approved Natural Sciences chosen from: PHYS [111.6](#); MATH [110.3](#), [112.3](#) or [116.3](#); GEOG [120.3](#); GEOL [121.3](#), [122.3](#); CMPT [111.3](#), [115.3](#). (PHYS [111.6](#) is recommended as part of these 6 credit units).
2. 27 credit units in core Biotechnology courses: ANAT [200.3](#); BIOCH [200.3](#), [212.3](#); BIOCH [311.3](#) or MICRO [391.3](#); BIOL [211.3](#), [316.3](#); MICRO [214.3](#) or AP MC [212.3](#); 6 credit units chosen from one of the following pairs: BIOL [217.3](#) and [218.3](#), BIOL [217.3](#) and [366.3](#), BIOL [205.3](#) and [331.3](#).
3. 12 credit units chosen from ANAT [331.3](#); BIOCH [230.3](#), [436.3](#); MICRO [216.3](#), [387.3](#), [417.3](#), [425.3](#); AN SC [313.3](#), [470.3](#); PL SC [411.3](#), [416.3](#); BIOL [480.3](#). (BIOL [480.3](#) is recommended as part of these 12 credit units.)
4. 21 credit units chosen from BIOL [203.6](#), [204.3](#), [205.3](#), [217.3](#), [218.3](#), [253.3](#), [263.3](#), [325.3](#), [326.3](#),

[342.3](#), [350.3](#), [366.3](#), [414.3](#), [420.3](#).

5. PHIL [236.3](#) plus additional courses such that (a) and (b) are satisfied as follows:

(a) 9 credit units are taken from SOC [292.3](#), [323.3](#); AG EC [292.3](#); COMM [345.3](#), [346.3](#), POLST [362.3](#), BTECH [301.3](#)

(b) 24 additional credit units are taken ensuring that Type C distribution requirements 2-5 are satisfied, with the recommendation that 6 of these credit units are chosen from the courses listed in (a) and/or from HIST [284.3](#).

Note: COMM [345.3](#) and [346.3](#) cannot be used in Type C distribution requirements.
Arts & Science Biotechnology students who wish to take AG EC [292.3](#), COMM [345.3](#) or COMM [346.3](#) as part of their program must contact the College of Biotechnology for permission, Tel: 306-966-2209.

6. PL SC [314.3](#) or STATS [245.3](#) or [246.3](#) or [242.3](#).

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Land Use and Environmental Studies (Biology Major)

Interested students should refer to the Land Use and Environmental Studies section of the *Calendar* and should consult with Dr. Rever-DuWors, LUEST Chair.

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Palaeobiology

The Departments of Anthropology and Archaeology, Biology and Geological Sciences have developed an interdisciplinary program in Palaeobiology. Interested students should refer to the Palaeobiology section of the *Calendar* and contact the chairperson of the administrative committee.

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U of S Professional College Admission Requirements

The following information was excerpted from various professional college websites at the U of S.

Students should always be advised to also consult the official calendar entry of professional college as there are likely other admission requirements in addition to the courses listed below.

REQUIRED PRE-DENTISTRY COURSES – UNIVERSITY OF SASKATCHEWAN

BIOL 120.3 and BIOL 121.3 or BIOL 224.3 or BMSC 224.3 - General Biology
CHEM 112.3 – General Chemistry I
CHEM 250.3 – Introduction to Organic Chemistry
PHYS 115.3 and 117.3 or 125.3 – General Physics (formerly 111.6 or PHYS 121.6)
BMSC 200.3 – Biomolecules (formerly BIOC 200.3)
BMSC 230.3 – Metabolism (formerly BIOC 211.3)
Six credit units (full course equivalent) in Social Sciences/Humanities

MEDICINE:

Note that as of 2009, students can apply with the following prerequisites or just complete the MCAT in order to admission requirements. Encourage them to consult that College Admission website for more information.

Biology 120 and 121/224 (formerly Biology 110)*
[Note Added by TM – strongly encourage students to complete BIOL 121 rather than 224, especially those early in their programs].

Chemistry 112 and 250

Physics 115 and 117 (formerly Physics 111)

English 110 or any two of English 111, 112, 113, and 114

Social Science/Humanities – 6 credits

Biomedical Science 200 and 230 (formerly Biochemistry 200 and 211)

* Biology 224 is the same course as Biomedical Science (BMSC) 224 and, therefore, will be accepted as the second term Biology prerequisite (with Biology 120) at the U of S.

NUTRITION:

- 6 credit units General Biology (with lab) (*BIOL 120.3 and 121.3 at U of S*)
- 3 credit units General Chemistry (with lab)
- 3 credit units Organic Chemistry (with lab)
- 6 credit units English Literature and Composition
- 6 credit units must include Psychology or Sociology
- 6 credit units of unrestricted electives

PHARMACY

- 6 credit units General Biology (with lab) (*BIOL 120.3 and 121.3 at U of S*)
- 3 credit units General Chemistry (with lab)
- 3 credit units Organic Chemistry (with lab)
- 6 credit units English Literature and Composition
- 6 credit units must include Psychology, Sociology, Philosophy, or Native Studies
- 6 credit units of electives in Humanities, Social Sciences, or Fine Arts

Please Note: The requirement for “English” must include English Literature and Composition. A general “academic writing” course is not sufficient.

VETERINARY MEDICINE

- 6 credits of English
 - 6 credits of Chemistry
 - 3 credits of Organic Chemistry
 - 3 credits of Biochemistry
 - 3 credits of Physics
 - 6 credits of Mathematics or Statistics
 - 6 credits of Biology
 - 3 credits of Genetics
 - 3 credits of Introductory Microbiology
 - 21 credits of elective courses
- Total: 60 credit units

Appendix: Other Policies & Regulations

Note: More information is available under Academic Advising in the Arts & Science tab on PAWS and on the College website. If you have specific questions about a College policy contact one of the College advisors listed in the PAWS advising document.

Academic Advising 2012 – Procedures, Policies and Regulations

Procedures for Advising

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4. Preparing for Advising:
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 - Degree Requirements
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 - Courses in Statistics
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 - Permission Required
 - Course Offerings for 2012-2013 & June Registration
 - Six Credit Units from Another College
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 - Spring & Summer Session 2012
 - Exchange & Study Abroad Opportunities
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 - College of Arts & Science Undergraduate Student Office
 - University of Saskatchewan Student Services

Academic Advising 2012 – Procedures, Policies and Regulations

Procedures for Advising:

1. Student Advising with Degree Works:

Beginning this year we will only be using the Degree Works program for advising. Remember this is a work in progress so you are invited to inform the Arts & Science Undergraduate Student Office of any irregularities in the program by contacting degreeworks@arts.usask.ca

While the Student Program Monitors will still be available and will provide the overall and major averages it is no longer necessary to use them when meeting with students. The Student Program Monitors will continue to be updated as at this time we are still working on the Degree Works function to calculate averages.

If this is your first time using Degree Works since the training session it is recommended that a careful review of the **FAQ's** and **HELP** links at the top of each Degree Works audit will provide valuable information before working with the individual students.

2. Advisor Check List:

When reviewing a student's program requirements on **Degree Works**:

- Review the audit with the student.
- Please note that the students' Academic Year, noted in the green bar, is the year they **began their studies** unless it has been changed by the Arts & Science Undergraduate Student Office.
- If students need to have the Academic Year changed to a more current curriculum contact degreeworks@usask.ca or phone 966-4244.
- If the Academic Year cannot be changed immediately (due to high demand) review the **What If** scenario for the appropriate Academic Year. While the What If scenario cannot be saved, it can be revisited at any time by the students.
- If the student has not formally declared a major or if it indicates a previous major please advise the student to go to their Arts & Science Tab on PAWS to declare or change to a new major. Again, a **What If** scenario can be reviewed.

- If you notice irregularities while working with the students send this information to degreeworks@arts.usask.ca
- If your department chooses to recommend an **exception** to the usual program requirements send an email to degreeworks@arts.usask.ca An exception would include, for example, substituting a different course in lieu of the usual course requirement.
- **Once you have completed the review of the program requirements with the student be sure to freeze the audit by:**
 - clicking on the drop down list at the top of the audit
 - click the **Frozen by Advisor** option
 - include your name and date in the blank box
 - click **Save**.

This will save the audit making it accessible to the students and to other advisors.

3. **Arts & Science Major/Career Choice Website:**

Students who not yet chosen a major, or are in the process of choosing, should be advised to visit the **College of Arts & Science Major/Career Choice Website** at <http://artsandscience.usask.ca/students/majorcareer/>

Students who are just beginning their journey should carefully review the **Steps to Choosing a Major**.

If they are close to making these decisions, but need information on potential careers, employers and strategies advise them to review the section on **What can I do with this major?** Be sure to review this document for information on your department's major(s).

Visit **Linking Majors to Occupations and Employers** to discover what Arts & Science alumni have done with their majors. This section may also be of interest to advisors.

If you are interested in more information on the development of this website visit the **Major/Career Choice Survey Report**.

4. **Preparing for Advising:**

Program and Major Requirements:

Review the **specific program and major requirements** in your discipline at http://www.usask.ca/programs/arts_and_science/1-program-information.html. This site will provide a list of all majors offered by the College of Arts & Science. Click on your discipline for a full description of all program and major requirements.

This site is organized by degree type with each type beginning with the **Distribution Requirements 1 to 5**. Distribution Requirements are satisfied with courses categorized as Fine Arts, Humanities (includes Languages), Natural Science and Social Science dependent on the chosen major.

Requirement 1 usually requires specific course(s) related to the major subject. Grades in these specific courses related to the major are included in the calculation of the major average and in the total number of credit units in one subject.

Requirement 4 for science degrees requires specific mathematics and statistics courses dependent on the chosen major.

Normally only courses offered by the College of Arts & Science may be used to satisfy Requirements 1 to 5.

Requirement 6 lists all specified courses required to satisfy the major. Grades in these courses are included in the calculation of the major average.

Requirement 7 includes required cognate courses and/or electives.

NOTE: Two averages are calculated for the degree requirements. Grades on all attempted courses (refer to the policy for **repeating courses** at <http://www.usask.ca/calendar/arts&science/policies/repeatingcourses/>) are included in the overall average. All attempted courses in the major, including the specified courses listed in Requirement 1, are included in the calculation of the major average. As mentioned earlier, at this time Degree Works does not provide information on averages, but will in the near future.

Degree Works and the **Student Program Monitors** are based on this structure and charts the Requirements 1 to 7 necessary for degree completion. Each major listed in the online calendar corresponds to this format.

Be aware that not all 100-level courses can be used to satisfy these requirements. Some exceptions include **Classics 103.3, 104.3, 105.3 and 106.3**. These courses may **NOT** be used in Requirements 1 to 4. Please refer to <http://www.usask.ca/calendar/arts&science/degrees/requirements/ba&bsc/> under the heading **Humanities**. Advise students interested in taking these courses to read the course descriptions for these four courses carefully.

Advising Science Majors:

Advisors in the **science majors** will please note that students who began their programs in the College of Arts & Science in September 2005 will be **required** to follow the **current science program**. Once students complete degrees they **must follow the current degree program if they decide to pursue a second degree**.

Students may now complete more than one Bachelor of Science degree. Refer to <http://www.usask.ca/calendar/arts&science/degrees/seconddegree/> to review the regulations governing these degree requirements. This option became available to students in September, 2009.

Advising Arts Majors on Science Requirements:

Science requirements for Program Types A, B and D can be met with courses listed under the heading **Natural Sciences** and can be viewed at <http://www.usask.ca/calendar/arts&science/degrees/requirements/ba&bsc/> Please note that students in the BA degree programs do not need to take Natural Science courses with labs to satisfy the science requirement.

NOTE: Science requirements for non-science majors can be met with certain specified 100-level courses in **Geography**. Students need to be cautious about their selections as certain restrictions exist.

- Please advise students to read the course descriptions carefully and also note that only **GEOG 125.3 and 120.3** can be used as natural sciences.
- **Geography 130.3** is categorized as a Social Science so it cannot be used to satisfy the Natural Science Requirement.
- **Geography 280.3** may also be counted towards the Natural Science Requirement for non-science majors. Please ask interested students to read the course description for GEOG 280.3 in the online *Calendar* to determine if they have completed the necessary prerequisites.

Courses in Statistics:

Please be aware that the College offers a number of senior-level statistics courses that are somewhat equivalent and, as a result, students are limited in the number they can take for credit. When advising students on statistics courses please review the following information carefully
<http://www.usask.ca/calendar/arts&science/policies/statscourseregulations/>

If you are uncertain please contact the in the College Undergraduate Student Office (see section on Questions & Referrals for contact information).

If you are advising students in science majors that require one of STAT 245.3, 246.3 or PLSC 314.3 in Requirement C4 and you notice that the student **has statistics course(s) in subjects other than these three approved courses** it is important that you refer the student to the College of Arts & Science Undergraduate Student Office. The student should **not** register in additional statistics courses without meeting with an advisor in the Undergraduate Student Office.

Minors and Recognition in a Language:

Not all disciplines offer minors, nor are minors required for degree completion.

Refer students to the specific subjects in the *Calendar* for more information. A listing of the departments offering minors can be viewed at

<http://artsandsceince.usask.ca/students/academics/handouts/Minors&RecognitionPrograms.pdf>

Minors in many disciplines are available upon completion of 18 to 24 credit units as specified by the department. Recognition in a Language is available in French, German, Russian, Spanish and Ukrainian upon completion of 18 specified credit units.

The minor or Recognition must be completed in conjunction with a major in a different subject or interdisciplinary program, and **must be completed at the time of graduation with an Arts & Science degree or certificate**. Students must also achieve an average of 62.50% on the courses that comprise the minor or Recognition program at the time of graduation.

Advise students who wish to declare minors or Recognition to come to the Undergraduate Student Office in Room 265 Arts or send an email to student-advice@artsandsceince.usask.ca

Completing Two Degrees:

Students may now complete more than one Bachelor of Science degree and more than one Bachelor of Arts degree. Refer to <http://www.usask.ca/calendar/arts&science/degrees/seconddegree/> to review the regulations governing these degree requirements. This option became available to students completing science degrees in 2009 and the BA option was approved in 2011.

Once students complete degrees they must follow the current degree requirements if they decide to pursue a second degree.

Students completing two degrees who have not been in contact with the College of Arts & Science Undergraduate Student Office should be referred to 265 Arts to request an assessment of their requirements for both degrees.

Degree Works will show only one degree type and major.

5. College Policies & Regulations:

Permission Required:

If your department offers courses that require **permission** prior to registration please send the students to the appropriate person in your department to have their names added to the permission lists. Please inform students that they will still need to register for the course(s) in June as some students believe that this is not necessary if permission has been obtained.

Course Offerings for 2012-2013 & June Registration:

Be aware that in April students will receive information through PAWS informing them of the **course offerings** that will be available for the **2012-2013 Fall & Winter Sessions**. Students will also receive a notice on PAWS in May informing them of their **access** date for June registration.

Six Credit Units from Another College:

Effective May 2005, **new** students entering the College of Arts & Science were **no longer** permitted to count 6 credit units from another college toward their Arts & Science degrees. (Refer to the comments below on courses that automatically transfer.) This has become a problematic issue so please have students **check with the College Undergraduate Student Office if they want to include a course from another college.**

Students can send their questions to student-advice@artsandscience.usask.ca

Courses that Automatically Transfer from Other Colleges:

There are a number of courses offered by other colleges that **automatically transfer** and can be counted towards Arts & Science degree programs. Typically courses offered by other colleges that are included on this list are either equivalent to Arts & Science courses or are already listed for credit in a specific Arts & Science degree program. These courses can be viewed at:

<http://artsandscience.usask.ca/students/academics/handouts/TransferCourses.pdf>

Transfer Credit from Other Institutions:

Information on policies governing the use of **transfer credits** and residency requirements are available at <http://www.usask.ca/calendar/arts&science/policies/residency/>

Students who have a significant number of transfer credits who have not been in contact with the College of Arts & Science Undergraduate Student Office should be referred to 265 Arts to request an assessment of their specific residency requirements.

Spring & Summer Session 2012:

The course offerings for Spring & Summer Session can be viewed at <http://www.springandsummer.usask.ca> Registration began on February 23. Students who have registered, or are planning to register, have been advised to discuss their selections at their advising appointments. Please be aware that these courses do not begin until **May 9** so revisions can still be made dependent on suggestions made during the advising appointment.

Exchange and Study Abroad Opportunities:

Please inform students that a listing of study abroad opportunities with the partner institutions is available at the International Student & Study Abroad Centre in Room 80, Lower Place Riel

6. Questions & Referrals:

QUESTIONS ???

If you encounter students with special problems or have questions with respect to transfer credits from other colleges and/or universities contact one of the following:

Donna Bretell	-	4242
Gloria Brandon	-	4237
Donna Bilokreli	-	4233 (Mon, Tues, Wed, Thurs am)
Renee Penney	-	7335

Student Services Referrals:

Student Services provides support systems for students with special concerns. Advisors and students need to be aware of the available resources in case problems arise. Referrals can be made if it appears that the student may benefit from additional information and support

The following resources are available:

Student Counselling Services	104 Qu'Appelle Hall	4920
Student Health Centre	145 Sask Hall	5768
Disability Services for Students	80 College Building	7273
International Students & Study Abroad Centre	80 Place Riel	4925
Aboriginal Students' Centre	110 Marquis	5790
Student Employment & Career Centre	Lower Marquis Hall	5003

Refer students who are interested in improving their academic skills to the University Learning Centre to <http://www.usask.ca/ulc/> for information on the available services.

APPENDIX 2:

Six Credit Units From Another College

Effective May, 2005, new students to the University of Saskatchewan are not permitted to use 6 credit units from another college toward their Arts & Science degree.

A list of courses in other colleges is available at <http://artsandscience.usask.ca/students/academics/handouts/TransferCourses.pdf> and is included in the Biology advising manual

AUTOMATIC TRANSFER FOR COURSES FROM OTHER COLLEGES

Revised: January 17, 2012

The following list shows the courses from other colleges which credit automatically towards an Arts & Science program. The regulations which apply to this credit are as follows:

1. College policy states that any courses from another college listed for credit in an Arts and Science program and courses offered by other colleges that are designated as equivalent to Arts and Science courses will credit automatically to any Arts and Science degree.
2. Students who began their Arts and Science program before the 1999-2000 academic year have the option to decline credit for all courses from another college listed for credit in an Arts and Science program. Students may not decline credit for courses offered by other colleges that are designated as equivalent to Arts and Science courses regardless of the year of enrolment.
3. Effective May, 2005, students in the College of Arts & Science may no longer use 6 credit units from another college toward their Arts & Science degree. Arts and Science students who began their programs prior to May, 2005 may credit an additional 6 credit units from another college. This includes students who have transferred to Arts and Science from another college.
4. Students in Second Degree programs, as described in the Calendar, may use the courses listed to meet the requirements for the Arts and Science degree. For example, an Engineering graduate who is completing a B.Sc. Three-year degree may use the Commerce courses listed below to satisfy elective requirements for a minimum of 30 additional credit units in Arts and Science. Such students may use an additional 6 credit units from another College, not listed here, towards completion of their Arts and Science degree. These 6 credit units may not be courses used on another degree.
5. Some additional courses, not listed, credit toward B.F.A. and B.Mus. Programs only.
6. Only Arts and Science courses (or their equivalents such as MATH 124.3) may be used for Requirements 1 to 5 of the Distribution Requirements, with the exception of statistics which may only be used as electives. Course equivalents are shown in square brackets[]. Other courses listed below can be used in Requirement 6 (Major) if approved by the department. All other courses will be used only in Requirement 7 as electives.

Courses from other colleges or taught for other colleges, which credit automatically as Arts & Science courses:

ACB 105.3	Introduction to Human Anatomy (elective only)	AGRC 111.3	Agricultural Science I
ACB 215.6	Basic and App. Human Anatomy [= ACB 210.3 + Senior ACB .3]	AGRC 112.3	Agricultural Science II
ACB 221.3	Gross Anatomy [Senior ACB.3 – may not have credit for ACB 221.3 and ACB 210.3]	AGRC 492.3	Term Paper and Technical Writing
ACB 232.6	Cell Biology and Histology [=BMSC 220.3 (ACB 200.3) + Senior ACB .3]	ANSC 313.3	Animal Breeding and Genetics
ACB 233.3	Embryology and Gross Anatomy [=ACB 210.3]	ANSC 470.3	Applied Animal Biotechnology
ACB 235.9	Gross Anat. and Embryology [=ACB 210.3 + Senior ACB .3 (6 credit units only will transfer)]	APMC	See FABS
ACB 334.3	Introductory Neuroanatomy (formerly ACB 234.3)	BIOC 213.8	Medical Biochemistry [=BIOC 200.3 + BIOC 211.3 + Senior BIOC .3]

BLE 303.3	Principles of Food and Feed Processing Equipment (formerly ABE 303.3)	COMM 201.3	Introduction to Financial Accounting (formerly ACC 120). (Students may receive credit for only one of COMM 201.3 or ENT 230.3)
BLE 309.3	Water Management (formerly ABE 309.3)	COMM 202.3	No longer offered, see COMM 105
BLE 432.3	Soil and Water Conservation (formerly ABE 432.3)	COMM 203.3	Introduction to Finance (formerly FIN 260) (Students may receive credit for only one of COMM 203.3 or ENT 300.3)
BPBE 230.3	Innovation and Entrepreneurship in Agribusiness (formerly AGECE 230.3)	COMM 204.3	Intro to Marketing (formerly MKT 251) (students may receive credit for only one of COMM 200.3, COMM 204.3 or ENT 210.3)
BPBE 292.3	Economics of Biotechnology (formerly AGECE 292.3)	COMM 205.3	Introduction to Operations Management (formerly QUANT/POM 391)
BPBE 330.3	Land Resource Economics (formerly AGECE 330.3)	COMM 207.3	Business Statistics II (formerly QUANT 295) [=half ECON 204.6]
BPBE 430.3	Natural Resources Economics	COMM 208.3	Introduction to Business Law (formerly BUSLW 111), see COMM 304.3
BPBE 432.3	Rural Development: Theory, Policy and Case Studies (formerly AGECE 432.3)	COMM 210.3	Introduction to Management Accounting (formerly COMM 301.3 and 302.3)
BPBE 433.3	Methods of Rural Analysis: Theory and Application (formerly AGECE 433.3)	COMM 211.3	Human Resource Management (only one of COMM 211.3 or ENT 220 may be taken for credit)
BSCM 100.3	See COMM	COMM 301.3	Management Accounting for Managers (formerly ACC 230), see COMM 210.3
CE 271.2	Spring Surveying Camp	COMM 302.3	Introduction to Management Accounting Only one of COMM 301.3 or 302.3 or 210.3 may be taken for credit, see COMM 210.3
CE 316.3	Geomatics	COMM 304.3	Introduction to Business Law (formerly COMM 208.3)
CE 329.3	Transportation Engineering (formerly CE 227.3)	COMM 340.3	Introduction to International Business (formerly MGT 340)
CE 467.3	Transportation and Regional Development	COMM 345.3	Business and Public Policy (formerly MGT 345)
CHE 220.3	Introduction to Process Engineering (formerly 277)	COMM 346.3	Commercialization of Biotechnology
CHE 223.3	Chemical Thermodynamics	COMM 348.3	Leadership (formerly HRM 344)
CHE 461.3	Introduction to Biochemical Engineering	COMM 366.3	International Business Finance (formerly FIN 366)
CHE 477.3	Applications of Numerical Methods [=MATH 315.3]	COMM 381.3	Industrial Relations (formerly COMM 206.3)
CHEM 114.3	General Chemistry for Engineers [= CHEM 111.3 or 112.3]	COMM 393.3	Spreadsheet Modelling for Business Decisions (formerly QUANT 393.3) [=CMPT 393.3]
CHEP 402.3	Global Health and Local Communities: Issues and Approaches	COMM 417.3	International Accounting (no longer offered, formerly ACC 417)
CHEP 412.3	Global Health: Selected Issues in Nicaragua	COMM 456.3	International Marketing (formerly MKT 456)
CME 433.3	Digital Systems Architecture	COMM 485.3	International and Comparative Employment Relations Systems (formerly INDRL 485)
CME 435.3	Verification of Digital Systems	CTST 200.3	Introduction to Catholicism
CME 451.3	Transport Networks	EE 201.3	Electric and Magnetic Circuits [= EP 229.3 (formerly PHYS 229.3)]
CME 462.3	Multimedia Signals and Systems	EE 232.3	Digital Electronics (formerly 220 and 310) [=CMPT 320.3]
CMPT 116.3	Computing I (formerly 122) [=CMPT 111.3]	EE 301.3	Electricity, Magnetism and Fields [= Senior PHYS .3]
CMPT 117.3	Computing II (formerly 123) [=CMPT 115.3]	EE 326.3	Applied Mathematics (no longer offered, can be used as linear algebra course in Computer Science PDSC program)
COMM 100.3	Business Communication (formerly BSCM 100.3)		
COMM 101.3	Decision Making I		
COMM 102.3	Introduction to Business Management (formerly MGT 103)		
COMM 104.3	Business Statistics I (formerly QUANT 194) [=half ECON 204.6]		
COMM 105.3	Introduction to Organizational Behaviour (formerly COMM 202, HRM 243)		

EE 331.3	Microprocessor Hardware and Software [=CMPT 215.3]	EP 356.3	Electric and Magnetic Field Theory (no longer offered) [=PHYS 356.3]
EE 332.3	Real Time Computing (formerly 422)	EP 413.3	Instrumentation and Design
EE 431.3	Logic Design Using FPGAs	EP 414.3	Instrumentation Laboratory
EE 432.3	VLSI Circuit Design (formerly EE 451 and 489)	EP 421.3	Optical Systems and Materials I
EFDT 482.3	Women and Education	EP 431.3	Optical Systems and Materials II
EFDT 483.3	Women and the Teaching Profession	EP 464.3	Advanced Applied Electromagnetism
EFDT 486.3	Gay and Lesbian Issues in Education	EPSE 441.3	Introductory Statistics in Education (formerly EDPSY 441.3) [=STATS 244.3]
EMUS 238.3	Classroom Instruments (formerly EMUS 338.3)	EVSC 110.3	Renewable Resources and Environment
EMUS 331.3	Methods in Elementary Music: Introduction	EVSC 203.3	Sampling and Laboratory Analysis (formerly EVSC 303.3)
EMUS 332.3	Methods in Elementary Music: Advanced	EVSC 210.3	Environmental Physics (formerly AGRC 210.3)
EMUS 337.3	Jazz Pedagogy	EVSC 220.3	Environmental Soil Science (formerly SLSC 220.3, 102, 112)
EMUS 338.3	Classroom Instruments	EVSC 420.3	Environmental Fate and Transport of Toxic Substances (formerly SLSC 420.3)
EMUS 340.3	Methods in Secondary Instrumental Music	EVSC 421.3	Soil Toxicology and Risk Assessment
EMUS 342.3	Philosophical Basis of Music Education	EVSC 430.3	Agroforestry for Environmental Management
EMUS 428.3	Choral Techniques		
EMUS 435.6	Advanced Instrumental Conducting		
EMUS 438.3	Methods in Secondary Choral Music		
ENT 210.3	Marketing for Entrepreneurial Ventures (Students may only receive credit for one of ENT 210.3 or COMM 204.3)	EXT 305.3	Developing Effective Extension Programs
ENT 220.3	Human Resource Management for Entrepreneurial Organizations (only one of ENT 220.3 or COMM 211.3 may be taken for credit)	EXT 405.3	Advanced Extension Techniques and Methods
ENT 230.3	Introduction to Accounting for Entrepreneurs (Students may only receive credit for one of ENT 230.3 or COMM 201.3)	FABS 210.3	Dimensions of Food Science (formerly FDSC 210.3)
ENT 300.3	Introduction to Entrepreneurial Finance (Students may only receive credit for one of ENT 300.3 or COMM 203.3)	FABS 212.3	Agrifood and Resources Microbiology (formerly APMC 212.3) [=MICRO 214.3]
ENT 310.3	Entrepreneurship and Small Business Management	FABS 315.3	Food Chemistry (formerly FDSC 415.3, FAMS 415.3)
EP 155.3	See PHYS 155.3	FABS 323.3	Food Additives and Toxicants (formerly FDSC 323.3)
EP 225.3	Waves, Fields and Optics	FABS 325.3	Food Microbiology and Safety (formerly APMC 425.3, FAMS 425.3)
EP 228.3	Computer Tools for Engineering Physics [=Senior PHYS .3]	FABS 334.3	Industrial Microbiology (formerly APMC 434.3, FAMS 434.3)
EP 229.3	Introductory Electromagnetism and AC Circuits = EE 201.3 (formerly PHYS 229.3)	FABS 345.3	Unit Operations in Food Processing (formerly FDSC 345.3)
EP 271.3	Heat, Kinetic Theory and Thermodynamics	FABS 360.3	Water Microbiology and Safety
EP 311.3	Electronics 1	FABS 362.3	Functional Foods and Nutraceuticals
EP 315.3	Modern Physics I (no longer offered) [= PHYS 251.3]	FABS 366.3	Physicochemical Properties of Food Macromolecules
EP 317.3	Applied Physics of Materials	FABS 371.3	Food Biotechnology (formerly FAMS 271.3)
EP 320.3	Discrete Linear Systems and Applied Information Theory	FABS 401.3	Dairy Science and Technology
EP 321.3	Electronics II (now CMPT 320, formerly CMPT 220)	FABS 411.3	Lipid Science and Technology
EP 324.3	Mechanics IV	FABS 412.3	Fluid Food Products (formerly FDSC 412.3)
EP 325.3	Modern Physics II (no longer offered) [= PHYS 381.3]	FABS 417.3	Food and Bioproducts Analysis (formerly FDSC 417.3)
		FABS 430.3	Environmental Microbiology (formerly APMC 430.3)
		FABS 433.3	Microbial Insecticides (formerly APMC 433.3)
		FABS 435.3	Microbiological Techniques (formerly APMC 435.3)
		FABS 436.3	Biofuels Production
		FABS 437.3	Industrial Microbiology II (formerly APMC 437.3)

FABS 450.3	Anaerobic and Rumen Microbiology (formerly APMC 450.3)	MATH 121.3	Mathematical Analysis for Business and Economics
FABS 452.3	Quality Assurance and HACCP (formerly FDSC 452.3)	MATH 123.3	Calculus I for Engineers [=MATH 110.3]
FABS 457.3	Meat Science and Technology (formerly FDSC 457.3)	MATH 124.3	Calculus II for Engineers [= MATH 112.3 or 116.3]
FABS 460.3	Protein Science and Technology	MATH 223.3	Calculus III for Engineers [MATH 225.3]
FABS 474.3	Food Enzymology	MATH 224.3	Calculus IV for Engineers [MATH 226.3]
FABS 486.3	Sensory Evaluation of Food	MCIM 224.3	Microbiology for Pharmacists and Nutritionists [=BMSC 210.3]
FABS 490.0	Honours Seminar (formerly FDSC 490.0)	MEAG 421.3	Principles of Food and Feed Processing Equipment (no longer offered)
FABS 491.3	Research Project (formerly FDSC 491.3)	MED 201.4	Pharmacology (formerly PCOL 301.6)
FABS 493.3	Product Development	MICR 316.3	Microbiology (no longer offered)
FABS 494.6	Research Thesis	NURS 390.3	Biostatistics (no longer offered) [=STATS 244.3]
FIAR 100.6	Introduction to Fine Arts (no longer offered)	NUTR 120.3	Basic Nutrition
GE 124.3	Engineering Mechanics I (formerly EP 124) [=half PHYS 121.6] [=PHYS 115.3]	NUTR 220.3	Advanced Nutrition (no longer offered)
GE 210.3	Probability and Statistics [STATS 245.3]	NUTR 221.3	Advanced Nutrition Micronutrients
GE 212.3	Electric and Magnetic Circuits I (no longer offered) [Senior PHYS .3]	NUTR 305.3	Research Methods
GE 226.3	Mechanics III	NUTR 310.3	Food Culture and Human Nutrition
GE 401.3	Refer to RCM 401.3	NUTR 321.3	Advanced Nutrition Macronutrients and Energy
GEOE 334.3	Gravity, Magnetics and Radiation Methods (now GEOL 334.3, formerly GEOE 333.6)	NUTR 322.3	Nutrition Throughout Lifespan
GEOE 335.3	Seismology, Radar and Electrical Methods (now GEOL 335.3, formerly GEOE 333.6)	PATH 205.3	Survey of Pathology
GEOE 379.2	Geological Mapping (no longer offered)	PCOL 301.6	See MED 201.4
GEOE 411.3	Well-Logging (now GEOL 411.3, formerly GEOE 488.3)	PCOL 350.6	General Pharmacology (=PHPY 304.3, 305.3)
KIN 121.3	Functional Basis of Physical Activity	PCOL 432.6	Selected Topics
KIN 122.3	Social Behavioural Foundations of Physical Activity	PHSI 202.9	Physiology [= H SC 208.6 (formerly PHSIO 212.6) + Senior PHSIO .3]
KIN 222.3	Biochmechanics I	PHSI 347.3	Respiratory Physiology
KIN 225.3	Introductory Exercise Physiology I (formerly 220, 325)	PHYS 155.3	Intro to Electricity and Magnetism (formerly EP 155.3) [=half PHYS 121.6]
KIN 226.3	Introductory Exercise Physiology II	PLSC 213.3	Principles of Plant Ecology (formerly PLEC 213)
KIN 255.3	Program Planning and Design for Leisure and Sport	PLSC 240.3	Plant Metabolism (formerly BIOC 220.3)
KIN 355.3	Program Management and Implementation for Leisure and Sport (no longer offered)	PLSC 301.3	Principles of Agronomy (no longer offered, formerly CRSC 301)
KIN 425.3	Physiology of Exercise	PLSC 314.3	Statistical Methods (formerly CR SC 214 or 314) [=STATS 245.3]
KIN 428.3	Nutrition Drugs and Physical Activity	PLSC 345.3	Pesticides and Crop Protection (formerly CR SC 345)
KIN 442.3	Biomechanics II	PLSC 405.3	Genetics of Plant Populations (formerly CR SC 350, 305, 405)
LAW 340.3	Administrative Law I	PLSC 411.3	Plant Breeding (formerly CR SC 411)
LAW 444.3	Environmental Law	PLSC 412.3	Physiological Plant Ecology (no longer offered, formerly PLEC 412)
LAW 457.3	International Law		
<i>(See Calendar for additional Law courses which transfer for Law students seeking a Second Degree in Arts & Science)</i>			
MATH 100.6	Mathematics for Education Students		
MATH 115.3	Calculus for Pharmacy [= MATH 125.3]		

- PLSC 416.3 Applied Plant Biotechnology
(formerly CRSC 416)
- PLSC 417.3 Crop Physiology (formerly CR SC 417)
- PLSC 420.3 Grain Chemistry and Technology
(formerly CR SC 420)
- PLSC 422.3 Rangeland Ecology and Management
- PLSC 423.3 Landscape Ecology and Vegetation
Management (formerly PLEC 432)
- PLSC 425.3 Forest Ecology
- PLSC 432.3 Conservation of Plant Genetic Diversity
(no longer offered)
- PLSC 461.3 Post-Harvest Management of Horticultural
Crops (formerly HORT 461)
-
- RCM 400.3 Rhetorical Theory and Practice of Persuasion
- RCM 401.3 Oral Rhetoric: Theory and Practice
[= Senior Arts and Science .3]
(formerly GE 401.3)
- RCM 402.3 Interpersonal Communication and Rhetoric
- RCM 404.3 Leadership as Communication
-
- RRM 212.3 Introductory Resource Economics and Policy
- RRM 312.3 Natural Resource Management and
Indigenous Peoples
-
- SLSC 220.3 See EVSC
- SLSC 232.3 Soil Genesis and Classification
(formerly SLSC 332.3)
- SLSC 312.3 Soil Fertility and Fertilizers
- SLSC 313.3 Environmental Soil Chemistry
- SLSC 322.3 Applied Soil Physics
- SLSC 332.3 Soil Genesis and Classification
(now SLSC 232.3)
- SLSC 343.3 Soil Microbiology
- SLSC 412.3 Integration and Application of Soil Science
- SLSC 420.3 See EVSC
- SLSC 460.3 Forest Soils
- SLSC 470.3 Evaluation of Land Resources
(no longer offered)
-
- VBMS 300.3 General Principles of Toxicology (now TOX
300.3)
- VBMS 425.3 Introduction to Toxicology
- VBMS 428.3 Gastrointestinal Physiology

APPENDIX 4:

Transfer Credit Opportunities

Information for students transferring from other institutions is available at: <http://artsandscience.usask.ca/students/transfer/>

Information for students transferring to the College of Arts & Science from other Colleges at the University of Saskatchewan is available at: <http://artsandscience.usask.ca/students/>

Information on courses from other Colleges at the University of Saskatchewan which transfer to Arts & Science is available at: <http://artsandscience.usask.ca/students/>

Arts & Science students wishing to take one or more courses from another university and receive credit toward a degree from the College of Arts & Science must apply for Visiting Student Status. The application form is available at: <http://artsandscience.usask.ca/students/forms/>

APPENDIX 5:

Date of Commencement of a Program

Students must comply with the regulations and degree requirements in effect at the time of their first registration in a course which credits toward their major. Arts & Science courses include those courses taught in other colleges for which credit is routinely granted by the College.

Students have the option to meet revised requirements subsequently approved by the College. Students in programs which require courses no longer taught by the department must consult with the department about how to complete degree requirements.

It is expected that students will complete their degree programs within 10 years of their first registration. Students taking more than 10 years to complete their programs will usually be required to meet current degree and graduation requirements.

Once a student has received an Arts & Science degree, any subsequent degree or certificate program commences in the first academic session in which study begins for the second degree or certificate alone.

The promotion standard ensures adequate progress is made and that you will meet the standards for graduation. If you cannot achieve the promotion standard, you are not making satisfactory progress. Your Cumulative Weighted Average (C.W.A.) is based on all University of Saskatchewan courses attempted, including failures (except for the lower grades on retaken courses). Your average also includes INF (incomplete-fail), WF (withdraw-fail) and ABF (absent-fail) grades. A numeric grade will be assigned by the instructor based on work completed in the course and this will be used in the calculation of averages.

Retaking Courses

If you have failed a University of Saskatchewan course, you can retake the course. If you have received a mark of between 50% to 59% in a course, you can retake it **once** as permitted by College policy. Only the higher University of Saskatchewan mark is used in the average but the lower mark remains on the transcript. Once you have passed an upper-level class, no prerequisite class can be retaken for a higher mark. For example, BIOL 120.3 and 121.3 cannot be retaken if you have already passed BIOL 211.3 at the University of Saskatchewan or its equivalent at another university.

You cannot raise a lower mark from a University of Saskatchewan class with a class from another institution. For example, if you fail BIOL 120.3 and 121.3 here but retake an equivalent course to BIOL 120.3 and 121.3 at another university, you can use the transfer course in your program but your original failing mark for BIOL 120.3 and 121.3 would stay in your University of Saskatchewan average.

What happens if my grades are too low?

The College calculates your C.W.A. at the beginning of June (or later, if you have deferred exams). You are notified by letter if your grades do not meet the promotion standard. Students who do not meet the promotion standard are either:

- 1) **Required to Discontinue (RTD)** for one year (June 30 to April 30). Required to Discontinue appears on your transcript.
OR placed on
- 2) **Probation**, which restricts you to 24 credit units during the next regular session (a maximum of 12 credit units per term). You may take courses in Spring and Summer Session. Probation does not appear on the transcript.

Students who are Required to Discontinue may have the option of taking courses as students in Open Studies during their RTD year. However, Arts and Science RTD students who take courses in Open Studies should be aware that they **must raise their average to 60% before they can be readmitted** to Arts and Science. Arts and Science RTD students who stay out the year during their first RTD are automatically readmitted to the College upon submission of the re-admission application.

What if my marks don't improve?

Because the Promotion Standard increases as you take more classes, if you are placed on probation one year you may well be Required to Discontinue the next unless your marks improve significantly.

Graduation standard in the major

The Promotion standard is based on the overall average. To graduate, you must also meet the graduation standard in your major subject. Being placed on Probation or RTD will alert you that your overall average is too low, but it is up to you to watch your major average. If it is too low, you should consult with the department to discuss what you can do to improve your marks and raise your average. You should also consider changing to a different major.

I failed in my first year. Can I ever graduate?

The College also uses an Alternative Graduation Standard and an Alternative Promotion Standard for students who have done poorly in the first or second year of studies. Provided you have performed better in the last two years of study, these standards ignore the marks from the first year or second year.

Appeals

Failure to meet the Graduation Standard cannot be appealed, and you cannot receive your degree if you do not meet the Graduation Standard. You can appeal being Required to Discontinue or being placed on Probation if there are documented extenuating circumstances (such as medical problems for yourself or your family or unexpected financial difficulties) which help to explain why your marks in that year were unusually low. The College expects, however, that you will resolve these problems before you return to school. As you still have these poor grades on your record, you must improve your academic performance before you can graduate.

If extensive problems have impacted your academic performance (e.g. a sudden debilitating illness or severe family crisis), you can also appeal for Retroactive Withdrawals from these courses. The appeal should be made as soon as possible and must be very well documented. Normally, such appeals are only considered if they relate to academic performance and difficulties experienced within the last two years.

A. Arts and Science Promotion Standards

Promotion Standard:

Credit Units Attempted:	Promotion	Probation	RTD
18 - 30	56%	55.99 - 50.00%	49.99% or less
31 - 60	58%	57.99 - 54.00%	53.99% or less
61 or more	60%	59.99 - 58.00%	57.99% or less

Alternative Promotion Standard*:

Credit Units Attempted:	Average calculation based <u>only</u> on:	Promotion	Probation	RTD
30 - 78	last 18 to 48 cu	62%	61.99 - 58.00%	57.99% or less
78 or more	last 48 to 60 cu	62.5%	62.49 - 60.00%	59.55% or less

B. Arts and Science Graduation Standards

All of the following standards exclude the lower grades on re-taken courses.

Overall Graduation Standard:

B.A. Three-year, Four-year; B.Sc. Three-year, Four-year, B.Mus.: 60% overall average.
 B.A. and B.Sc. Honours, B.F.A.: 70% overall average.

Graduation Standard in the Major:

B.A. Three-year, Four-year; B.Sc. Three-year, Four-year, B.Mus.: 62.5% average on all courses attempted in the major subject.
 B.A. and B.Sc. Honours, B.F.A.: 70% average on all courses attempted in the major subject.

Overall Alternative Graduation Standard*:

B.A. Three-year, Four-year; B.Sc. Three-year, Four-year, B.Mus.: 62.5% overall average on last 60 credit units.
 B.A. and B.Sc. Honours, B.F.A.: 75% overall average on the last 60 credit units or more.

Alternative Graduation Standard in the major:

B.A. and B.Sc. Three-year: 62.5% average on all senior courses (200-level or higher) attempted in the major.
 B.A. and B.Sc. Four-year, B.Mus.: 65% average on all senior courses (200-level or higher) attempted in the major.
 B.A. and B.Sc. Honours, B.F.A.: no alternative graduation standard in the major. The normal Honours standard in the major must be met to receive these degrees.

*Alternative Promotion and Graduation Standards allow students who failed courses during their first or second year at University to graduate provided they achieve higher marks in their last two years.

Graduation Standard in the Minor and in Recognition

62.5% on all required courses attempted. Completion of a Minor or Recognition in a Language is not required to receive a degree so there is no alternative standard.

Graduation Standard in the Post-Degree Specialization Certificate (PDSC)

62.5% in the major and 60% overall in the courses required for the PDSC. The Alternative standard can also be used if applicable.

APPENDIX 7:

Maximum Number of Credit Units

Normally students register in a maximum of 30 credit units (15 credit units per term) in a Regular Session. However, upper-year students with a Cumulative Weighted Average (C.W.A.) of at least 70% on a minimum of 30 credit units completed previously, can receive permission from the Undergraduate Office to add a maximum of 6 additional credit units to their program. The form to request permission to take 33 or 36 credit units in a Regular Session is available at the [website](#).

Junior and Senior Courses

Junior courses are numbered at the 100-level. Senior courses are numbered at the 200-, 300-, or 400-level. Depending on the subject, there may be limitations to the number of junior credit units allowed. If a department offers more than 6 credit units in 100-level courses, students should see Courses and/or Programs to determine whether they will be allowed credit for additional junior courses.

MINOR & RECOGNITION PROGRAMS

January 5, 2012

- ▶ The Minor or Recognition must be completed in conjunction with a major in a different subject or an interdisciplinary program, and must be completed at the time of graduation with an Arts and Science degree.
- ▶ The graduation standard for a Minor and the Recognition in a Language requires a cumulative weighted average of 62.5% including all courses taken in the subject of the minor and in the language of Recognition. There is no alternate standard.
- ▶ Residency Regulations apply to Minors and Recognition.
- ▶ For the most current information on Arts & Science programs, standards, policies and regulations refer to the online University Calendar: <http://www.usask.ca/calendar/arts&science>.

MINORS

Minors are available in many disciplines on completion of 18 to 24 credit units as specified by the department. Not all disciplines offer minors. The College of Arts and Science offers minor programs in the following areas:

Anthropology	German
Archaeology	History
Art – Studio Art	Indigenous Peoples and Justice Program
Astronomy	Jazz Studies
Biology	Jewish and Christian Origins
Canadian Literature in English	Mathematics
Catholic Studies	Native Studies
Chemistry	Northern Studies
Classical, Mediaeval and Renaissance Studies	Philosophy
Classics	Philosophy, Science & Technology
Computer Science	Physics
Crime, Law, and Justice Studies	Political Studies
Critical Perspectives on Social Justice & the Common Good	Religious Traditions
Digital Culture & New Media	Russian
Economics	Spanish
Entrepreneurship	Statistics
French	Studies in Religion and Culture
Geographical Information Systems	Toxicology
Geography (Human)	Ukrainian Studies
Geography (Physical)	Urban Planning
Geology	Water Science
	Women's and Gender Studies

RECOGNITION

Recognition in a Language is available in **French, German, Russian, Spanish, or Ukrainian** upon completion of 18 credit units as specified by the Department of Languages and Linguistics.

APPENDIX 9:

Raising the C.W.A.: 18 Credit Unit Rule

A student who has completed the course requirements of the B.A. or B.Sc. Three-year, Four-year or Advanced Certificate but has not met the C.W.A. requirements, may take up to 18 additional credit units in order to raise the C.W.A. A student may not take more than a total of 18 such additional credit units in completing all degrees and certificates in the College of Arts & Science. Of the 18 credit units not more than 6 may be junior. The courses taken to raise the C.W.A. must be approved in advance by the Undergraduate Office. Courses taken to raise the C.W.A. may not be credited towards any other degree or certificate. The 18 credit unit rule does not apply to the B.F.A. degree, Honours degree or Certificate.

RETAKE OF COURSES & COURSE EQUIVALENTS

October 3, 2011

1. A failed University of Saskatchewan course may be retaken. If a mark between 50% and 59% has been received in a course, College policy allows the course to be retaken **once**. Only the higher University of Saskatchewan mark will be used in the average.
2. Once an upper-level course has been passed, no prerequisite course may be retaken for a higher mark. For example, BIOL 120.3 and 121.3 may not be retaken if BIOL 226.3 (or its equivalent at another university) has already been successfully completed.
3. A passed course may be retaken concurrently with a course for which it is a prerequisite. For example, having passed CHEM 112.3 with a mark between 50% and 59%, CHEM 112.3 could be retaken in the same term as CHEM 115.3 or 250.3.
4. Marks from other universities cannot be used to erase a University of Saskatchewan mark. For example, a failing grade of 39% received for BIOL 120.3 and 121.3 at the University of Saskatchewan, cannot be replaced with an equivalent course at another university which achieves a grade of 75%. The transfer course will be credited in the program with a "P" (Pass), but the 75% will not be included in the average. Only the failed 39% from the University of Saskatchewan course will be included in the average.
5. Grades received for all attempts at a course will remain on the transcript.
6. For admission, promotion and graduation purposes, other colleges may follow different rules for calculation of the average. For example, other colleges may use only the first grade received or they may use all grades received in a course.
7. Grades for courses transferred from other universities are not used in the calculation of averages to determine promotion and graduation eligibility. Transfer marks are used in the average for admission to an Honours program. A course for which transfer credit has been received cannot be retaken for credit or to raise the average; however, a failed transfer course may be retaken at the University of Saskatchewan.

Retake Equivalencies Accepted by Arts & Science

As a general rule, the **exact same course** must be retaken in order to replace a lower mark. Example: Six credit units from ENG 111.3, 112.3, 113.3, 114.3 may **NOT** be taken to replace a grade of 59% or less in ENG 110.6.

Courses accepted as similar in programs are considered program substitutions; such courses are not usually considered equivalencies in retakes. For example, PSY 233.3 and STAT 244.3 are considered similar in statistics content, but a mark of 59% or less in STAT 244.3 cannot be replaced by taking PSY 233.3.

There are two exceptions to this rule:

1. In some circumstances, a more challenging course can replace a failure when both courses are taught by the same department. For example, a grade of 59% or less in MATH 112.3 may be replaced with a higher grade in MATH 116.3. However, a failure in MATH 116.3 cannot be replaced with a pass in MATH 112.3.
2. Some Arts & Science departments teach courses in academic subjects for professional colleges and for Arts & Science students. In cases where the content of the professional college's course is substantially equivalent to an Arts & Science course, the professional college course may replace the Arts & Science course. (This applies particularly to courses in the College of Engineering.)

The retake equivalents based on these exceptions are as follows:

First Course Taken

COMM 393.3
 CMPT 122.3 or 116.3
 CMPT 123.3 or 117.3
 EE 310.3
 GEOE 118.3
 GEOL 108.3
 GEOL 109.3
 MATH 104.3 (101.3)
 MATH 112.3
 MATH 123.3
 MATH 124.3
 MATH 125.3
 MATH 223.3
 MATH 224.3
 MATH 264.3
 STAT 244.3

Arts & Science Retake Option

CMPT 393.3
 CMPT 111.3
 CMPT 115.3
 CMPT 320.3
 GEOL 121.3
 GEOL 121.3
 GEOL 122.3
 MATH 110.3
 MATH 116.3
 MATH 110.3
 MATH 116.3
 MATH 110.3
 MATH 225.3 or MATH 276.3
 MATH 226.3 or MATH 238.3
 MATH 266.3
 STAT 245.3

To replace any other failed course, the same course must be retaken. For example, STAT 245.3 cannot replace PLSC 314.3.

Retakes for Courses No Longer Taught

Below are some common examples. Contact the Undergraduate Office for information on courses that do not appear on this list.

BIOC 203.6	BIOC 200.3 & 211.3, <u>or</u> , if 212.3 is taken, BIOC 200.3 & 212.3. Credit can be received for BIOC 200, 211 & 212.	GEOG* 101.3 or 102.3 GEOG* 111.3 or 112.3 GEOG 113.3 GEOG 114.3 GEOG 210.3 GEOG 215.3 GEOG 246.3 NATST 100.3 NATST 110.6 PHIL 105.3 PHYS 111.6 PHYS 121.6 POLS 110.6 SOC 110.6	GEOG 120.3 or 125.3 GEOG 120.3 GEOG 130.3 GEOG 130.3 GEOG 280.3 GEOG 280.3 GEOG 341.3 NS 106.3 NS 105.3 & 106.3 PHIL 140.3 PHYS 115.3 & 117.3 PHYS 115.3 & 125.3 POLS 111.3 & 112.3 SOC 111.3 & 112.3
CHEM 111.3	CHEM 112.3		
CHEM 251.3	CHEM 250.3		
CMPT 220.3	CMPT 320.3		
CMPT 321.3	CMPT 420.3		
CMPT 361.3	CMPT 461.3		
CMPT 374.3	CMPT 355.3		
CMPT 416.3	CMPT 463.3		
CMPT 422.3	CMPT 332.3		
CMPT 424.3	CMPT 434.3		
CMPT 426.3	CMPT 436.3		
CMPT 429.3	CMPT 442.3		
CMPT 460.3	CMPT 385.3		
CMPT 490.3	CMPT 408.3		

*Only **one** of GEOG 101, 102, 111 or 112 may be retaken.

APPENDIX 11:

Prerequisites

Students enrolled in courses for credit are required to have satisfied the stated prerequisites or, in exceptional cases, to have obtained a [prerequisite waiver](#) approved by the instructor, department head and the Undergraduate Office in the College of Arts & Science. Please be aware, prerequisite waivers must be approved **prior** to attending the class. Only students with a minimum Arts & Science C.W.A. of 65% will be considered for a prerequisite waiver. Students who do not have the prerequisites or approved prerequisite waivers are expected to withdraw from the course. Students who do not withdraw may have their registration cancelled by the Undergraduate Office or may be denied credit for the course.

APPENDIX 12:

Residency

Residency Regulations

Students must complete from the University of Saskatchewan:

- at least one-half of the overall coursework required for their degree, including at least two-thirds of the senior credit units required (to the nearest highest multiple of 3 credit units), and
- at least two-thirds of the coursework required in the student's major subject (to the nearest highest multiple of 3 credit units).

Students must meet the overall C.W.A. and major C.W.A. as described under Promotion and Graduation Standards.

Students must meet all program requirements for the particular degree or certificate they are pursuing. This means that some students will have to complete more courses than the following minimum requirements.

For specific degrees, the minimum requirements are as follows:

B.A. or B.Sc. Three-year

Of the credit units required for the degree, students must complete at least 45 credit units overall from the University of Saskatchewan, including:

- a minimum of 30 senior credit units, and
- at least two-thirds of the credit units required in the major (to the nearest highest multiple of 3 credit units). For a 30 credit-unit major, this means that at least 21 credit units in the major subject are required.

B.A. or B.Sc. Four-year and B.A. or B.Sc. Honours

Of the credit units required for the degree, students must complete at least 60 credit units overall from the University of Saskatchewan, including:

- at least 42 senior credit units
- at least two-thirds of the courses required in the major (to the nearest highest multiple of 3 credit units). For a 36 credit-unit Four-year major, this means that at least 24 credit units in the major subject are required.

Advanced or Honours Certificates for Students Who Already Have a B.A. or B.Sc.

From the University of Saskatchewan: In addition to the credit units completed for the previous degree or certificate, the student must complete at least 30 credit units from the College of Arts and Science and must satisfy all residency requirements as stated for the respective Four-year or Honours degree as listed above.

From another university: In addition to the credit units completed for the previous degree or certificate, the student must meet all program requirements and complete at least 30 credit units from the College of Arts and Science, at the University of Saskatchewan, including at least 24 senior credit units and at least 18 credit units in the subject of the major.

Minors and Recognition

In an 18 credit unit minor or recognition, at least two-thirds of the courses required to the nearest highest multiple of 3 credit units must be completed at the University of Saskatchewan. Similarly, in a 24 credit unit minor, at least two-thirds of the courses required to the nearest highest multiple of 3 credit units must be completed at the University of Saskatchewan and in a 21 credit unit minor, two-thirds of the courses required to the nearest highest multiple of 3 credit units must be completed.

APPENDIX 13:

Statistics Course Regulations

Courses in statistics eligible for credit in the College of Arts and Science are to be selected as follows:

Only One of:

a) [PLSC 314.3](#), [GE 210.3](#), [STAT 242.3](#), [STAT 245.3](#) [STAT 246.3](#)

or only one from each of b) and c) - courses from b) are prerequisites for courses in c)

b) [COMM 104.3](#), [EPSY 441.3](#), [GEOG 301.3](#) (no longer offered), [PSY 233.3](#), [SOC 225.3](#), [STAT 244.3](#),

c) [COMM 207.3](#), [PSY 234.3](#), [SOC 240.3](#) (no longer offered), [SOC 325.3](#) or

d) [ECON 204.6](#) (students who take [ECON 204.6](#) may not take a course from a), b), or c).

Students who take a course from a) are not allowed to take a course from b), c), or d). Students who take a course from b) and subsequently take a course from a) will lose credit for the course from b).

NOTE:

For the B.A. and old B.Sc. programs, [STAT 242.3](#), [STAT 245.3](#) or [STAT 246.3](#) may be used in Distribution Requirements 1 to 5 in exceptional cases, but no other course listed in a) to d) may be used in these Distribution Requirements. Students must contact the Undergraduate Office for further information.

For the current B.Sc. program, only [PLSC 314.3](#), [STAT 245.3](#), [STAT 246.3](#) can be used in Requirement #4.

Transfer credit of Jr. STAT .3 will only be considered equivalent to courses listed in b).

ADDITIONAL INFORMATION:

[STAT 103.3](#) and [STAT 241.3](#) are courses in probability theory so are not listed above.

[STAT 103.3](#) may be taken for credit before, after, or concurrently with any course from b).

If [STAT 103.3](#) is taken first, credit will be granted for any one of the courses from a) or c).

If [STAT 103.3](#) is taken first, followed by [ECON 204.6](#) students will only receive 3 credit units of [ECON 204.6](#).

[STAT 241.3](#) will receive credit in addition to any of the courses listed in a) to d).

Credit will not be granted for [STAT 103.3](#) if it is taken concurrently with, or after [STAT 241.3](#).

Appendix 14

The following sections are taken from the Arts & Science Section of the Calendar, found in its entirety at: http://www.usask.ca/programs/arts_and_science/1-program-information.html

Second Degree Programs

Programs in Arts & Science and in other colleges of this University may be combined to enable the student to obtain more than one degree in less time than if the two programs were taken separately. Students intending to complete degrees from Arts & Science and from another college should be aware that they must be admitted to the other college before they can receive the other college degree. It is possible to complete an Arts & Science degree while registered as a student in another college or as a student in Open Studies.

Students who wish to follow a Second Degree Program are advised to consult the Undergraduate Office of the College of Arts & Science to ascertain the precise course requirements. The form to request a review of outstanding second degree requirements is available online at <http://artsandscience.usask.ca/students/forms/>. The duration of the Second Degree Program and the course requirements are determined by the following regulations:

1. *Residency requirement:* Students must meet the [residency requirements](#) of the college for the specific degree sought.
2. *a. Additional credit requirements for B.A. degree:* Students pursuing a B.A. Three-year degree in addition to another different degree (not a B.A.) must complete at least 30 Arts & Science credit units not used for the other degree. Similarly, for all Four-year and Honours B.A. degree programs, at least 60 additional Arts & Science credit units, not used for any other degree or certificate, are required. These additional Arts & Science credits are required regardless of the number of Arts & Science courses included in the program leading to the first degree. These courses must be allowable for credit in the College of Arts & Science.
b. Additional credit requirements for B.Sc. degree: Students pursuing any B.Sc. degree in addition to another different degree, must complete at least 30 Arts & Science credit units not used for the other degree. These additional Arts & Science credits are required regardless of the number of Arts & Science courses included in the program leading to the first degree. These courses must be allowable for credit in the College of Arts & Science.
3. *Program requirement:* Students must satisfy all program requirements and the graduation standards for the degree being attempted.
4. In some cases, these regulations may mean that students are required to take more than the minimum 90 credit units for a Three-year degree or more than 120 credit units for a Four-year or Honours degree. The credit units which are in excess of the 90 or 120 may be in the subject of the major.
5. For students completing an Arts and Science degree and a degree from another college, the number of senior (200-level and above) credit units required is dependent on the courses chosen for the degree in the other college. To determine requirements for the second degree, students must consult the Undergraduate Office, College of Arts & Science, prior to their final year.
6. *Date of commencement of a program:* Once a degree has been received, students must complete the program requirements and the graduation standards which are in place for the academic session in which they begin their studies toward the additional degree or certificate. If the date of program commencement is more than 10 years ago, students should contact the Undergraduate Office. Such students will be required to meet the current degree requirements. For example, students who complete a B.Sc. Three-year and return to upgrade to a B.Sc. Four-year must follow the new B.Sc. Program.
7. The overall and major Cumulative Weighted Averages (C.W.A.) for Arts & Science graduation are calculated on grades from all University of Saskatchewan courses taken, including any course from another college which credits toward the Arts & Science degree and all Arts & Science courses taken while in another college. This means that the average will include all courses which transfer to the College of Arts & Science, even if they exceed the minimum number of credit units required for the Second Degree program requirements. Under certain restrictions, failures and marks below 60% will be excluded from the average if these courses have been retaken in accordance with the rules of the College. See "[Cumulative Weighted Average](#)" in this section.
8. Students who have completed a B.A. Type A (Humanities) prior to a B.Sc. (Natural Science) are exempt from the Humanities Writing Requirement for B.Sc. programs.

Second B.Sc. Degree (B.Sc. and B.Sc.)

The following regulations apply to students who have a B.Sc. and wish to complete a second B.Sc.:

1. After completion of a B.Sc. degree, it is possible to obtain a second Four-year or Honours B.Sc. degree that is in a different major. Students who have completed their previous degree at the University of Saskatchewan must complete a minimum of 30 credit units so as to satisfy all the requirements for a different major, and such that the 30 credit units includes a minimum of 12 credit units of relevant courses as approved by the department of the new major.
2. Students transferring from another institution and pursuing a second B.Sc. Four-year or Honours degree must meet the residency requirements of the College of Arts and Science for the B.Sc. Four-year or Honours degree as a first degree program (see [Residency Regulations](#)).
3. The B.Sc. Three-year degree is not available to a student who holds a previous B.Sc degree.

B.A. and B.Sc., or B.Sc. and B.A.

The following regulations apply to students who have a B.A. and wish to complete a B.Sc. or who have a B.Sc. and wish to complete a B.A.:

1. Students may not receive two Three-year degrees.
2. a. To receive a second Four-year or Honours B.A. after a B.Sc. degree, students must complete a minimum of 60 additional credit units and fulfill all program requirements. Students must complete a minimum of 150 to 180 credit units. The 60 additional credit units are required regardless of whether the first degree was a Three-year, Four-year, or Honours degree.

b. To receive a Four-year or Honours B.Sc. after a B.A. degree, students must complete a minimum of 30 additional credit units and fulfill all program requirements. The 30 additional credit units are required regardless of whether the first degree was a Three-year, Four-year or Honours degree. Students must complete at least 120 to 150 credit units.
3. To receive a Three-year degree, students must complete a minimum of 30 additional credit units and fulfill all program requirements. Only students who have completed a Four-year or Honours degree may subsequently complete a Three-year degree. Students must complete at least 150 credit units.

Upgrade of Arts & Science Three-year degree to Four-year or Honours degree

The following regulations apply to students who are upgrading their B.A. or B.Sc. to a higher degree in the same or different major but of the same degree type. For example, a student with a B.A. Three-year in Sociology may upgrade to a B.A. Four-year in History or a student with a B.Sc. Four-year in Biology may upgrade to a B.Sc. Honours in Biology.

1. Students who have a Three-year degree with the minimum 90 credit units must complete a minimum of 30 additional credit units and fulfill all program requirements in order to upgrade to a Four-year or Honours degree. A minimum of 120 credit units is required for the Four-year or Honours degree.
2. Students with a Four-year degree may upgrade to an Honours degree in the same major provided that there are additional Honours program requirements remaining and that they successfully complete these requirements.
3. Students who have already completed all program requirements for an Honours degree, Certificate, or B.F.A. degree, but did not achieve the C.W.A. graduation standard required for Honours, are not permitted to take or retake courses to upgrade to an Honours degree under this policy.
4. Students who complete a Three-year B.Sc. and return to upgrade to a Four-year B.Sc. must follow the new B.Sc. Program.

Degrees for students with a B.A. or B.Sc. from another university

Students with a B.A. or B.Sc. degree from another university may be allowed to receive a B.A. or B.Sc. degree from the University of Saskatchewan. Students who wish to pursue such an option must consult the Undergraduate Office, College of Arts & Science.

Advanced and Honours Certificates

A student who has already completed a B.A. Four-year or Honours degree can receive an Advanced or Honours Certificate in

a different B.A. major or interdisciplinary program, on completion of at least 30 additional credit units, subject to completion of Four-year or Honours program requirements in that major or interdisciplinary program. A student who has already completed a B.Sc. Three-year, Four-year or Honours degree may pursue a B.Sc. Four-year or Honours degree in a different major as a Second Degree subject to the conditions listed previously.

From another university: Students who hold a B.A.. Four-year or Honours degree from another university are eligible to receive the Advanced or Honours Certificate subject to the conditions listed previously. Such students must complete a minimum of 30 additional University of Saskatchewan credit units including at least 24 senior credit units and at least 18 credit units in the subject of the major. Students who hold a B.Sc. Four-year or Honours degree from another university are eligible for a B.Sc. from the University of Saskatchewan subject to the residency rules for a first degree from the College.

Note: Under this policy governing second degrees and upgrades, which was effective in September, 1998, students who have a B.A. Three-year or B.Sc. Three-year degree may not be awarded an Advanced or Honours Certificate. Students already in such programs should consult with the Undergraduate Office to determine when they must complete the pre-1998 program requirements.

Arts & Science and Education

The Second Degree Program for the B.A. or B.Sc. Three-year and B.Ed. requires a minimum of 156 credit units and completion of all program and degree requirements. Students who have been awarded a B.Ed. and wish to receive a B.A. or B.Sc. Three-year degree must complete at least 30 additional credit units in Arts & Science, in addition to any Arts & Science courses used in completing the Education degree, as well as completing all program and degree requirements. Students may also choose to complete a B.A. or B.Sc. Four-year or Honours degree. Such students should consult the Undergraduate Office.

APPENDIX 15:

Interdisciplinary Programs

An Interdisciplinary program is an academic program which permits students to study beyond the boundaries of traditional disciplines or disciplinary programs, to explore the relationship among disciplines in depth, and to integrate knowledge gained into a central theme.

Details for the following programs may be found in the *Calendar*:

http://www.usask.ca/programs/arts_and_science/interdisciplinary-programs.html

[Bioinformatics](#)

[Biomolecular Structure Studies](#)

[Biotechnology](#)

[Classical, Medieval and Renaissance Studies](#)

[Environmental Earth Sciences](#)

[Food Science](#)

[International Studies](#)

[Linguistics](#)

[Mathematical Physics](#)

[Palaeobiology](#)

[Public Administration](#)

[Regional and Urban Planning](#)

[Toxicology](#)

APPENDIX 16:

College Scholar, Special Studies & Special Topics Courses

The College Scholar and Special Studies courses have been established to provide qualified students with freedom to plan a course that will fulfill their individual academic interests. Students in these courses pursue independent studies on topics or projects not encompassed by standard courses and receive academic credit for these studies.

The *College Scholar* course ([CSCH 298.3](#), [CSCH 299.6](#), [CSCH 398.3](#), [CSCH 399.6](#), [CSCH 498.3](#), [CSCH 499.6](#)) is designed for students who wish to study a subject which cannot normally be attempted in one course or which includes the disciplines of more than one department. These individual research projects credit only as electives. Please consult the Undergraduate Office for more information.

The *Special Studies* course ([SPST 298.3](#); [SPST 299.6](#); [SPST 398.3](#); [SPST 399.6](#); [SPST 498.3](#); [SPST 499.6](#)) permits a student to study a topic in the discipline area of one department. Special Studies projects credit either as electives or in a major.

Normal sessional deadlines apply to these courses, except in extraordinary circumstances.

Complete applications, including the project description, must be submitted by the supervising professor to the Undergraduate Office.

Special Topics Courses

These are courses numbered 298.3, 299.6, 398.3, 399.6, 498.3 and 499.6 taught occasionally by faculty and visiting scholars in departments. They are listed in each department program. Students may receive credit for more than one Special Topics course in a department providing course titles and content are different.

What's New

The College of Arts & Science has approved, or is in the process of approving, a number of course and program proposals for 2012-13. Major initiatives are highlighted below. **Items marked with an asterisk (*) still require approval.**

Consult the online University *Course and Program Catalogue* at <http://www.usask.ca/programs/> for the most current information on courses and programs. (The version for 2012-13 will be posted in March 2012.)

New Programs

- Bachelor of Music (Music Education)
- Minor in Ukrainian Studies

Revised Programs

- Aboriginal Public Administration
- Biochemistry
- Bioinformatics
- Biology & Biotechnology
- Classical, Medieval & Renaissance Studies
- Entrepreneurship (Minor)
- Environmental Biology
- Food Science
- Geography (B.Sc.)
- International Studies
- Microbiology & Immunology
- Modern Languages
- Music
- Native Studies
- Northern Studies
- Philosophy (STM programs)
- Type A (Humanities) Bachelor of Arts – students will now be required to take 9 credit units in the Language requirement, including a minimum of 3 credit units from a second/additional language

Deleted Programs

- Biochemistry & Biotechnology (Double Honours only)
- Indigenous Peoples and Justice – Minor
- International Studies – Slavic and Eastern European Studies stream only
- Russian – Minor and Recognition
- Sociology (Indigenous Peoples and Justice Program)
- Ukrainian – BA 3yr programs

New Courses

ANTH 240.3 – Cultural Landscapes and Environments
ANTH 244.3 – Political Ecology, Anthropology and Global Environmental Issues
ANTH 401.3 – Honours Essay
ANTH 403.3 – Anthropology of Healing
EP 214.3 – Analog Signals and Systems
EP 313.3 – Advanced Analog Electronics and Instrumentation
EP 325.3 – Optical Systems Design
EP 417.3 – Advanced Materials Science with Applications
PHYS 456.3 – Electricity and Magnetism II
HIST 334.3 – History of Medicine: Bugs to Drugs, 1800-Present
HIST 335.3 – Spectacles of Death in the Roman World
INTS 100.3 – Learning to Learn: Strategies for Academic Success (Replaces PSY 101)
*IS 100.3 – Global Issues
*IS 201.3 – Global Citizenship, Cultures and Coexistence
*IS 202.0 – Global Experiential and Cultural Learning
LING 350.3 – Career Internship
MUAP 211.1 – Ensemble
MUS 160.0 – Keyboard Proficiency
MUS 438.3 – Seminar in Instrumental Conducting
NS 373.3 – Indigenous Masculinities in the Global Context
PHIL 115.3 – Introductory Indigenous Philosophy
POLS 253.3 – Conquest and Revolution in Latin America (formerly half of POLS 247.6)
POLS 254.3 – Democratization and Development in Latin America (formerly half of POLS 247.6)
*POLS 456.3 – Quantitative Political Analysis
PSY 120.3 – Biological Bases of Psychology (formerly half of PSY 110.6)
PSY 121.3 – Social, Clinical, Cultural and Developmental Bases of Psychology (formerly half of PSY 110.6)

Deleted Courses

EP 225 – Waves, Fields and Optics
EP 229 – Introductory Electromagnetism and AC Circuits
*IPJP 301 - Indigenous Knowledge I Methodologies
*IPJP 302 - Indigenous Knowledge II Theory and Practice
*IPJP 402 - Interdisciplinary Concepts of Justice
*IPJP 403 - Reconciliation as a Concept of Justice
*MUAP 220 - Band
*MUAP 221 - Chorus
*MUAP 222 - Corelli Strings
*MUAP 223 - Chamber Ensemble with Piano
*MUAP 224 - Percussion Ensemble
*MUAP 225 - String Ensemble
*MUAP 226 - Vocal Ensemble
*MUAP 227 - Small Wind Ensembles
*MUAP 228 - Collegium Musicum
*MUAP 230 - Music Theatre
*MUAP 231 - Contemporary Music Ensemble
*MUAP 232 - Jazz Ensemble
*MUAP 320 - Band
*MUAP 321 - Chorus
*MUAP 322 - Corelli Strings
*MUAP 323 - Chamber Ensemble with Piano
*MUAP 324 - Percussion Ensemble
*MUAP 325 - String Ensemble
*MUAP 326 - Vocal Ensemble
*MUAP 327 - Small Wind Ensembles
*MUAP 328 - Collegium Musicum
*MUAP 330 - Music Theatre
*MUAP 331 - Contemporary Music Ensemble
*MUAP 332 - Jazz Ensemble
*MUAP 420 - Band
*MUAP 421 - Chorus
*MUAP 422 - Corelli Strings
*MUAP 423 - Chamber Ensemble with Piano
*MUAP 424 - Percussion Ensemble
*MUAP 425 - String Ensemble
*MUAP 426 - Vocal Ensemble
*MUAP 427 - Small Wind Ensembles
*MUAP 428 - Collegium Musicum
*MUAP 430 - Music Theatre
*MUAP 431 - Contemporary Music Ensemble
*MUAP 432 - Jazz Ensemble
PHYS 251 – Relativistic Mechanics and Quantum Physics