
# 2012 - 2013

# ORIENTATION

# FOR

# NEW GRADUATE STUDENTS

# IN

# EARTH SCIENCES

**THE DEPARTMENT OF EARTH SCIENCES**
**Main Office: Biology & Geology Building, Room 1044**
**Main Telephone 519-661-3187, University Switchboard 519-661-2111**

| | | | |
|---|---|---|---|
| ***Department Chair:*** eschair@uwo.ca | Dr. Gerhard Pratt | B&G 1045 | x. 86690 |
| ***Administrative Officer:*** mschell@uwo.ca | Mrs. Marie Schell | B&G 1050 | x. 83191 |
| ***Graduate Chair:*** gplint@uwo.ca | Dr. Guy Plint | B&G 1072 | x. 83179 |
| ***Academic Program Coordinator:*** kjorda5@uwo.ca | Mr. Kevin Jordan | B&G 1044 | x. 84523 |
| ***Undergraduate Chair:*** esuchair@uwo.ca | Dr. Rob Schincariol | B&G 0174 | x. 83732 |
| ***Administrative Assistant:*** kjohns24@uwo.ca | Ms. Katherine Johnston | B&G 1044 | x. 83187 |
| ***Financial Assistant:*** mmoulto@uwo.ca | Ms. Margaret Moulton | B&G 1053A | x. 86691 |

***Graduate Committee:*** Dr. A. Guy Plint *(Chair)*; Dr. Jisuo Jin, Dr. Elizabeth Webb, Dr. Rob Schincariol, Dr. Sean Shieh. Student Rep: Laura Sanchez

| | | |
|---|---|---|
| ***Graduate Geoscience Society:*** www.uwoggs.com | President: | Laura Sanchez |
| | Past President: | Sam Russell |
| | Vice-President: | Piotr Angiel |
| | Treasurer: | Kegan Farrick |
| | Web Design: | Tom Ulanowski |
| | SOGS reps: | Sam Russell |
| | | Jessica Flynn |
| | | Dave Edey |
| ***Undergrad Outcrop Club:*** | President: | Sean Israelson |

# WELCOME NOTES

Welcome to the Department of Earth Sciences. This booklet is designed to provide you with "starter" information, to get you used to the department and the campus, and to provide pointers on rules and regulations that govern all of us. If you have any questions on any aspect of graduate studies, just ask us.

Kevin Jordan
Academic Program Coordinator

Dr. A. Guy Plint
Graduate Chair

**Helpful Links**

Key dates to remember are published at http://www.registrar.uwo.ca/index.cfm/important-dates/

The Office of the Registrar website is www.registrar.uwo.ca, and links to that website will provide much information of use to you. The Registrar's Office is located in the Western Student Services Building (WSS), adjacent to the University Community Centre (UCC).

You can activate your personal computer account and email using your student number and PIN, at www.uwo.ca/its.

The online Student Centre is located at http://student.uwo.ca. All financial and personal information as well as courses and grades are located here. Please make sure all your online information is correct and kept up-to-date.

Maps of the campus are available from the Academic Coordinator, or online at http://www.geography.uwo.ca/campusmaps/. Most labs, lecture halls and professorial offices related to the Department of Earth Sciences are located in the Biological & Geological Sciences Building (B&GS) in central campus. We also have space in the Western Science Centre (WSC) and the Staging Building.

Western also has an online email and telephone directory for all staff, faculty and students, located at http://www.uwo.ca/westerndir/.

Fee schedules are published at http://www.registrar.uwo.ca/index.cfm/student-finances/fees-refunds/.

Graduate course schedules for each term are at http://www.uwo.ca/earth/graduate/GraduateSchedule.html.

Wi-Fi is available in all university buildings. You will need your UWO ID and password to register for the network.

## Things to do when you arrive:

1. Meet your Supervisor; Kevin Jordan, Academic Coordinator; Dr. A. Guy Plint, Graduate Chair; and Marie Schell, Administrative Officer.

2. Visit the Western Student Services (WSS) building and obtain your student card.

3. Pay your fees. See http://www.registrar.uwo.ca/index.cfm/student-finances/fees-refunds/tuition-account/ for more information.

4. See Kevin Jordan to be assigned a personal desk space in the Department. Grad students share common office space in B&G, Western Science and Staging Buildings.

5. Complete the online Comprehensive WHMIS course, and provide a PDF copy of your certificate to Margaret Moulton, the Departmental Safety Officer. The course can be completed at http://webct.uwo.ca. If you do not see the course on your WebCT, notify Margaret Moulton. You may also be required to complete safety training for individual labs (e.g. X-ray safety training), for which consult with your supervisor. All required safety training must be completed before you will be allowed lab access.

6. Keys and pass codes for the doors to the Biology & Geology Building, common laboratory keys, and other rooms as required will be provided once you have completed necessary safety training and WHMIS. See the Academic Coordinator for a key requisition after you have ascertained which keys you will need; your supervisor should be able to give you a list.

7. Your TA schedule is designated in late August of every year. Please see the instructor of the course(s) you have been assigned to for your TA duties. You will need to sign a contract which will be emailed to you. It is *your responsibility* to work only those hours for which you have been appointed. Notify your course supervisor if you feel your allotment of hours is being used up quickly, as he/she will have to adjust duties accordingly. Do not work more than those allotted hours. One unit of TA = 140 hours = 10 hours/week average over the term; one half unit of TA = 70 hours = 5 hours/week average over the term. Payroll for TA positions is done monthly on the second-last banking day of each month; you must enter your banking information and SIN online at http://myhr.uwo.ca in order to get paid.

8. Schedule to take the TA Training Program, at http://grad.uwo.ca/360/teaching.cfm.

9. Obtain your bus pass. The Society of Graduate Students provides a City of London bus pass to all graduate students, which is paid for through your student fees. You can collect your pass starting in late August in the SOGS office, UCC Rm. 260. See http://www.londontransit.ca/ for information about buses.

10. Ensure that the Academic Program Coordinator has your local address and telephone number, and also update your personal information in the Student Centre online. You must also provide next-of-kin information to the Department.

11. Review the departmental field safety policy, located online at http://www.uwo.ca/earth/links/safety.html.

12. Register for courses. The course schedule is posted online every August at http://www.uwo.ca/earth/graduate/GraduateSchedule.html.

## If you are an international student:

13. Provide the Graduate Coordinator with a copy of your Study Permit, if applicable, and also show it to the School of Graduate & Postdoctoral Studies, Support Services Building Room 4180, to activate yourself as a student. You must show you are legally here in Canada before you may register.

14. If you are going to be working as a Teaching Assistant, you must obtain a Social Insurance Number (SIN) from Service Canada. You will need a letter from the Department advising you are working in order to obtain one; see the Academic Program Coordinator. Once you have this letter, visit Service Canada at 457 Richmond St. (at Queens Ave., take #6 Richmond bus) in downtown London. A SIN card is a legal requirement for earning any income in Canada. Once you have your number, you enter it online at http://myhr.uwo.ca in order to be paid for your TA.

15. Check out the Student Development Services website to learn about services for international students, located at http://www.sdc.uwo.ca/int/.

16. Ensure you are registered in UHIP (University Health Insurance Plan) and pay the appropriate fees, which are included in your tuition. See http://www.sdc.uwo.ca/int/services/index.html?uhip.

17. Schedule to take the International TA Training Program, or alternative program. See http://grad.uwo.ca/360/teaching.cfm.

## Safety Training

**Everyone** has to take the following **4** modules:

- **Western's Employee Health and Safety Orientation – Work Safely at Western**
- **Workplace Hazardous Materials Information System (WHMIS) **** Contact Shauntel Seaton in OHS (sseaton3@uwo.ca) if you have any problems in accessing WHMIS through WebCT.
- **Safe Campus Community - Preventing Harassment, Violence, and Domestic Violence at Western**

  **Accessibility at Western**

  *Whichever one of the courses below that applies to your personal situation:*

  - Accessibility in Service (for Academic and Administrative Leaders and Staff),

  or, - Accessibility in Teaching (for Faculty, Graduate Teaching Assistants, Archivists, and Librarians)

**** It is a requirement of the Dept of Earth Sciences that everyone has Comprehensive WHMIS**

**How to Access WebCT for the above 4 training sessions.**

Log on to WebCT at: http://webct.uwo.ca/
- Select: "The University of Western Ontario"
- Select: "Check Browser" to ensure your web browser settings will function properly.
- Log into WebCT using your Western user ID and password.
- Select the appropriate course

**If you have trouble accessing WebCT courses or forgot your password, contact the ITS Helpdesk at ext. 83800.**

If you will be working in a lab that has chemicals then you also need to take the following training:
**Laboratory Safety - Hazardous Waste** - found at:
https://www.uwo.ca/humanresources/facultystaff/h_and_s/training/training_idx.htm

Your Supervisor will inform you if more specific training is required. i.e. Radiation, biosafety, x-ray, etc.
When you have completed your training, please send me (mmoulto@uwo.ca) a PDF copy for our department records, and your supervisor also needs a copy.

Thanks
Margaret Moulton
Financial Assistant &
Health & Safety Administrator
Dept of Earth Sciences

# REGISTRATION & FEES

You are automatically registered as a student by accepting your offer of admission online and paying your fees.

Your fees payable are listed online in your Student Centre. It is your responsibility to ensure that they are paid by the deadline. Payment can be made at the Registrar's Office, or via online banking. For information about making an online payment, see http://www.registrar.uwo.ca/FinancialServices/AccountBalance.cfm. Fees can be paid in full or a payment plan can be set up.

Your fees include many university services including your membership in the Society of Graduate Students, your bus pass, membership in the new Western Campus Recreation Centre, and many other university services. For a detailed breakdown of where your ancillary fees go, see http://www.registrar.uwo.ca/index.cfm/student-finances/fees-refunds/fee-schedules/.

Each student is permitted up to two weeks paid vacation per year. Arrangements for this leave must be made in consultation with the student's supervisor. Please inform the Academic Program Coordinator each time you will be away.

Leaves of Absence from one to three terms away from your program are permitted under SGPS guidelines, in the event of a medical or compassionate emergency or maternity/paternity leave. Online applications are located on the SGPS website. Documentation may be required.

# HEALTH INSURANCE

All graduate students are automatically entered into the SOGS Healthwise health plan. This program includes dental coverage, prescription drugs, and other benefits not covered by provincial health coverage or UHIP. For more information, visit http://sogs.studentwise.ca/. The cost is automatically included in your student fees for all graduate students.

Students can opt out and receive a refund of their fees if they have equivalent coverage already through a personal, spousal or family health plan as defined by the Society of Graduate Students. To opt out, visit the SOGS office, UCC Room 260. Refund cheques will be generated every October for students who opt out.

All international students are required to obtain UHIP cards on arrival to UWO. UHIP provides equivalent health coverage to provincial health insurance to international students. The cost (fall 2011) is $1,296 per year for a single student which is included in your tuition fees; family rate will be more. If you accepted your offer before August 1, 2012, you are automatically enrolled in the UHIP program; **if you registered after August 1, you will need to apply** at the School of Graduate and Postdoctoral Studies Office in the Natural Science Building, room 200. The UHIP program is **mandatory** for all international students, unless you have adequate pre-existing healthcare coverage as determined by the School of Graduate and Post-Doctoral Studies, in which case you are permitted to opt-out and receive a refund of your fees. Visit http://www.uhip.ca for more information.

There is also a supplementary Health Plan available to TA's through the GTA Union. See http://www.gtaunion.com for details.

# GRANTS AND FELLOWSHIPS

All graduate students are strongly encouraged to seek opportunities to apply for grants, scholarships, bursaries, fellowships and other awards. The bulletin board near the rear entrance to the B&G Building has postings of such opportunities, and the weekly newsletter "Down to Earth" will provide reminders of upcoming deadlines. See the last pages in this brochure for a listing of awards with recent successes by students of this department.

The NSERC and OGS application period is in October of each year. You will be notified when applications are open.

# SUPERVISOR AND COURSES

### *Supervisor*

You should meet your supervisor as soon as possible and discuss ideas for your thesis and enrolment in specific courses.

### *Advisory Committee*

By the end of the first month of your program, you should be informed of your Advisory Committee. You will be meeting with the committee at regular intervals throughout your stay in the Department.

### *Course Selection*

Course selection is done in conjunction with your supervisor in order to determine the appropriate course of study relating to your field. Course offerings are usually not published until the end of August; however a full listing of all available courses is online at http://www.uwo.ca/earth/graduate/GraduateCourses.html.

### *Course Registration*

Graduate Course Self-Registration is done online, at http://student.uwo.ca. You are responsible for deciding which courses you are taking in consultation with your supervisor.

For those students taking undergraduate courses, or graduate courses cross-listed with undergraduate courses, please ensure that you attend all classes, as they generally start earlier than graduate courses.

Graduate students can take up to 1.0 undergraduate courses without incurring additional tuition, if the courses are relevant to your program of study. See the Academic Program Coordinator for an undergraduate course registration form.

If you are taking any undergraduate-only courses, please note that graduate students must register for undergraduate courses during the "Add/Drop" period for undergraduate students in early September, so be sure to see the Academic Program Coordinator early to do this. For the actual Add/Drop period, please check the Registrar's Office web site or take note of departmental notices.

*Course Requirements*

All students must complete a minimum of 50% of their coursework in their primary discipline (i.e. geology or geophysics). Courses can be taken in other areas related to research as determined by the student in conjunction with their supervisor. Many students take courses in geography, civil engineering, math and physics.

All M.Sc./Ph.D. students are required to take Geology/Geophysics 9580 (for M.Sc.) and Geology/Geophysics 9680 (for Ph.D.). Those Ph.D. students who completed their M.Sc. in this department and took Geology/Geophysics 9580 are not required to take Geology/Geophysics 9680.

Accelerated M.Sc. students are not required to complete Geology/Geophysics 9580, but may take it if they wish to do so.

*Geology Program*
**M.Sc.:** Four half-courses (2.0 courses) including Geology 9580, and a thesis.
**M.Sc. (Environmental Science) option:** Geology 9580 and the thesis plus one full graduate course (or 2 half courses) in Geology and the requirements of the Environmental Science program.
**Accelerated M.Sc.:** Seven half courses (3.5 courses) over two terms including a field course, plus a four month major research project (GL9590).
**Ph.D.: (with external M.Sc.)** One full course including 9680 (if not taken previously) and the thesis; the minimum requirement for those with a UWO M.Sc. is one full course excluding the 9680. The candidate has to pass a Qualifying Examination.
**Ph.D. (Environmental Science) option:** Geology 9680 and the thesis and 2 full (or 4 half) graduate courses in Geology, and the requirements of the Environmental Science Program; credit for one full course will normally be given to candidates holding an M.Sc. degree in Earth Sciences. The candidate has to pass a Qualifying Examination.

*Geophysics Program*
**M.Sc.:** Geophysics 9580 (seminar) and the thesis, and a number of graduate courses. The courses are geared to the background of the student and recommended by the student's supervisor; the minimum requirement is 2 full course equivalents including Geophysics 9580.
**M.Sc. (Environmental Sciences) option:** Geophysics 9580 and the thesis, the requirements of the Environmental Science Program, and additional course(s) as recommended by the supervisor, based on the background of the student and the thesis topic.
**Accelerated M.Sc.:** Seven half courses over two terms including a field course, plus a four month major research project (GP9590).
**Ph.D.:** Geophysics 9680 and the thesis and a number of graduate courses as recommended by the supervisor; the minimum requirement is one full course including 9680 (if with an external M.Sc.); the minimum requirement for those with a UWO M.Sc. is one full course excluding the 9680. The candidate has to pass a Qualifying Examination.
**Ph.D. (Environmental Sciences) option:** Geophysics 9680 and the thesis, the requirements of the Environmental Science Program, and additional courses as recommended by the supervisor, based on the background of the student and the thesis topic. The candidate has to pass a Qualifying Examination.

*Ph.D. Comprehensive Exams*
Ph.D. Comprehensive exams must be completed within the first eighteen months of beginning your Ph.D. If you upgrade from the M.Sc. program you must take your comps within the first six months. See the Academic Program Coordinator for more information and a copy of the Departmental guidelines.

# WHOM DO I SEE FOR...

The Graduate Programs at the University are administered by the School of Graduate and Postdoctoral Studies (SGPS), represented by Vice-Provost Linda Miller, School of Graduate and Postdoctoral Studies. Within the Department of Earth Sciences, the Graduate Committee sets the policies administered by the Graduate Chair and by the Academic Program Coordinator. An elected representative of the graduate students is a member of the Graduate Committee; for 2012-13, this person is Laura Sanchez. Feel free to let the student representative on the Graduate Committee know your concerns.

From your perspective, the most important person for academic purposes is your supervisor. For day-to-day administrative purposes your first point of contact is the Academic Program Coordinator. For any and all of your concerns, talking to your supervisor and the Academic Program Coordinator should be the first step.

If, in your judgment, the matter is serious enough, feel free to take it up with any of your Advisory Committee; the Graduate Chair, Dr. Guy Plint; or the Department Chair, Dr. Gerhard Pratt.

# OTHER UNIVERSITY SERVICES

*Mail*
INCOMING: Mailboxes for graduate students are in the graduate student lounge, B&G 1014. All mail, notes from your supervisor, SGPS, etc. will be put here. Given that mailboxes are shared, we ask that you empty your mailbox at least once a week as a courtesy to those sharing your box. The door to this room is opened by keycode; see the Academic Program Coordinator for the combination.

Note: Cheques of any kind (when identified) will not be put into mailboxes; an e-mail message will be sent to the student which tells them who is holding the cheque, and where the student can claim it.

OUTGOING: Thesis-related mail is handled by the department, as long as a university speedcode account number is written in pencil on the envelope or package. If none is shown, that item will remain in the department. Personal mail can be deposited in the red Canada Post mailbox outside B&G 1000A; or you can visit the post office in the basement of the UCC.

COURIER: The Department uses DHL and Federal Express on a regular basis; a university account should also be included on the waybills, available in the supply room. Parcels are picked up in the office of Katherine Johnston by the courier.

*Telephone*
Personal calls are not allowed on departmental facilities. If you will be making long-distance calls as part of your research, discuss with your supervisor about getting an LDAC number billed specifically to their grant.

*Fax*
Fax facilities available in the department are for research-related items only. All personal faxes must be handled outside the departmental facilities. Fax cover sheets are available in B&G 1038. Send faxes according to instructions near the fax machine. Personal faxes are the responsibility of the student, and they should use the facility available in the U.C.C. (currently near Travel Cuts).

*Photocopying and Graphics*
The department copier is available in the supply room (B&G 1038) for use related to your TA duties. Check with the Department for hours of operation. A code number is required to use the copier; the Academic Program Coordinator will provide this to you. For research-related copying, please contact your supervisor and ask if they will provide a copy card charged to their research account for use at various locations across campus. If a large amount of copying is required for TA purposes, jobs should be taken to Imprint in the U.C.C. Copies of research papers are expected to be paid through research grants.

Coin-operated photocopiers are available at various localities on the campus for personal use.

*Purchasing*
If you wish to purchase an item for your research project, first speak to your supervisor, and then to Katherine Johnston, to obtain a purchase requisition. Include the item, the name and address of the supplier, an approximate price and an account number. Ask Ms. Johnston how to proceed.

## Computing and E-mail

Computing services and email access are available through both the Department of Earth Sciences and ITS (Information Technology Services). The departmental computer technician is Mr. Barry Price (B&G 0175), or bprice@uwo.ca.

If you encounter difficulty with your UWO computer accounts, see Barry, or email the ITS helpdesk at helpdesk@uwo.ca.

The Department maintains two drop-in computer labs in B&G 0182 and 0184 for your use at any time, provided there is not a class going on inside.

Wi-Fi is also available in all campus buildings, provided you've logged in with your UWO ID and password.

## Campus Safety
## Foot Patrol, 519-661-3650

The University has established a "Foot Patrol" program during the academic year (September through April). A male and female volunteer will accompany you from building to building or to your car during evening hours. See http://www.uwo.ca/footpatrol/ for more information.

The Western Foot Patrol and Campus Community Police Services have launched a new Work Safe program. The service will be invaluable to students, staff and faculty. Hours of operation: 7 days a week, 6 pm-6 am; September, holidays, exams 9 pm-6 am.

**How it works:**

1) Customers must be registered before using the program. Customers can register between 12 noon-5 pm, Monday to Friday by phone at the Western Foot Patrol office, 661-3650, or customers can register on the night they wish to use the service.
2) To use the service, call 661-3650 between the hours of 6 pm and 1 am, or 661-3300 between 1 am-6 am.
3) The customer will provide times throughout the evening to call either the Foot Patrol Office or Police Services. It is the customer's responsibility to call into the office and "check in" with the operator.
4) If the Customer has not called 5 minutes after the designated check in time, we will call the customer. If the customer does not answer the phone, we will leave a message, wait five minutes and then dispatch the Police for a welfare check.
5) Customers must call the service when they are leaving campus.

This service is free of charge and is open to anyone who will be working late on campus. We are offering the program as a response to demand and to increase safety awareness and deterrence of crime on the UWO campus.

# Medical Services

## Emergency Numbers (24 hours)

***Off-Campus Emergencies: Dial 911***

Ambulance 911
Fire 911
Police 911
Hazardous materials emergencies 911
Campus police (non-emergency) 519-661-3300 or ext. 83300
***Campus police (emergency) 519-661-3333 or ext. 83333***
Physical Plant - Service Centre - 519-661-3304 or ext. 83304
(for building-related emergencies)
Distress Centre Crisis Line (London) - 519-667-6711
Poison Information Centre (London) - 519-667-6565
Sexual Assault Crisis Line (London) - 519-438-2272

## Student Health Services

Student Health Services provides medical and mental health services to UWO students. Appointments are recommended. The cost of treatment should be covered through your

Provincial health card (for Canadian students) or through UHIP (for international students). Appointments are recommended but not always necessary. SHS is located in the University Community Centre, room 11.

Medical services 519-661-3030, or on campus, ext. 83030
Counselling services 519-661-3771, or on campus, ext. 83771
Trudy Bunde, Unit Coordinator, ext. 85911
Website: www.shs.uwo.ca

| | | |
|---|---|---|
| **Hours:** | Monday to Thursday: | 9:00 a.m. - 5:00 p.m. |
| | Fridays: | 9:00 a.m. - 4:30 p.m. |
| **Evening:** | Monday to Wednesday: | 5:00 p.m. - 7:00 p.m. |
| **Weekends:** | | 10:00 a.m. - 1:00 p.m. |
| **Summer:** | Monday-Friday: | 8.30 a.m.-4.00 p.m. |
| | Closed weekends and holidays | |

If emergency service is required, please go to the nearest Emergency Ward in a hospital. The closest Emergency Ward is located at University Hospital, 339 Windermere Road, on the north side of campus. The other Emergency Ward in London is at Victoria Hospital, Commissioners Road @ Wellington Road, in the south end of the city.

Student Emergency Response Team (SERT) is a student volunteer organization trained to help in emergencies on campus. If 911 is called on campus, this team is dispatched to help at the scene. E-mail: shs-ert@uwo.ca, telephone extension: 84824.

## Other Services

### LIBRARIES

Western has an extensive library system which includes many separate branches. The Allyn & Betty Taylor Library in the Natural Sciences Centre is Western's Science library and has an extensive collection of books and periodicals related to Earth Sciences. Western's main library is the D.B. Weldon Library, located adjacent to the UCC. Your student card acts as your library card. For more information and the library catalogue, visit http://www.lib.uwo.ca/.

### STUDENT RECREATION CENTRE

The new Western Student Recreation Centre opened in early 2009. The Rec Centre is open to all students, with membership being covered by your student fees. The Rec Centre includes an Olympic-sized swimming pool, five gyms, a 19,000 square-foot fitness centre and weight room, and five squash courts. For more information, see http://campusrec.uwo.ca/.

### LEISURE

The University Community Centre includes:

- Two full-service restaurants, The Spoke (casual) and The Wave (full-service)
- 94.9-FM Radio Western
- The Gazette student newspaper
- CentreSpot café
- Western Film, a nightly second-run movie theatre

- Shopping concourse, including the Campus Book Store, Pharmacy, Computer store, Mustang Alley, Travel Cuts, Hair Masters salon, and bank machines

# OFFICE SPACE

The Department will provide every graduate student who is within their expected time to completion, as defined by the School of Graduate and Postdoctoral Studies, with a desk/cubicle separate from their associated research laboratory. See Kevin Jordan to have your office assigned. We currently have space in B&G 1031, 1033 and 1073, as well as supplemental space in the Staging and Western Science buildings.

The bulk of graduate students will be housed in larger, communal rooms. The student is expected to maintain his/her assigned area in a state of reasonable cleanliness and order. The department reserves the final right to relocate students or revoke his/her space privileges, as governed by overriding departmental concerns or a failure to comply with departmental rules and codes of conduct.

Graduate students who are beyond their expected graduation date, as defined by the School of Graduate and Postdoctoral Studies, will not be entitled to individual desk/cubicle space as provided above. However, every attempt will be made to house students still making acceptable progress toward degree completion, as determined by the Graduate Chair, so long as space is available, and under the same restrictions defined above for fundable students. If sufficient space is not available to house every graduate student, preference for desk/cubicle space will be given to students within their expected times to completion, and space privileges for students beyond their expected time to completion will be evaluated following the guidelines listed below. Final determination on the individual revocation of space allocations shall be determined by the Chair of the Graduate Committee and the Chair of the Infrastructure Committee and in compliance with general guidelines outlined in the next paragraph.

Guidelines (applies to students beyond their expected time to completion):

i. Students will be provided with desk/cubicle space for one term after their expected time to completion, given that space is available in existing graduate student offices. The normal times to completion are: 2 years (M.Sc.); 4 years (Ph.D.); 5 years (M.Sc. to Ph.D. upgrade).

ii. The progress and standing of each student will be evaluated at the start of each term by the Graduate Chair, in conjunction with the student's advisor and the Infrastructure Chair. Should the student be making acceptable progress and maintaining residence locally, the department will make every effort to continue providing desk/cubicle space as available. Should space become unavailable, the student's space privileges will be revoked.

iii. If it becomes necessary to evict one or more graduate students from their allocated space every attempt will be made to select the particular student(s) on a fair and judicious basis. Specific factors that will be considered in the decision-making process include the length of time that has passed since the student's original degree date, the extent of continued funding provided by the student's

supervisor, and the length of time to their anticipated defence. Final selection will be made by the Graduate Chair and Infrastructure Chair, again in conjunction with the students' individual advisors.

iv. Any student who is not making continued progress toward their degree, or not residing locally and inhabiting or working at the provided desk/cubicle will have their office and space allocation revoked. Furthermore, no storage space will be provided to students who are not considered to be making significant progress toward completion of their degree.

Students in the Accelerated Masters program are not automatically entitled to departmental office space, though we will make every effort to provide it.

# 11. ACCESS TO RESEARCH AND TECHNICAL FACILITIES

Well-equipped state-of-the-art research laboratories and technical facilities are available to graduate students for thesis-related research. These facilities, all located within the Department of Earth Sciences, are listed below along with the person(s) in charge. If you need the use of any facility, discuss this with your supervisor and s/he will contact the person(s) in charge and direct you appropriately. Training and/or a cost for using the facility may be required.

## Workplace Hazardous Materials Information System (WHMIS)

WHMIS is a program run by the government of Canada to ensure that anyone who works in close proximity to hazardous materials is properly trained in their use and safety procedures. WHMIS training must be taken by anyone who works with or in close proximity to chemicals, and therefore has the potential for exposure. As a department which has many such labs, we have now made it departmental policy that all employees and students will have **Comprehensive WHMIS** training. This training is so employees will be able to recognize workplace hazards and will have the knowledge as to where to find information, how to interpret information and how to work safely should they encounter hazardous materials.

Both Basic and Comprehensive versions of the WHMIS test are available on-line through "WebCT Owl", at http://webct.uwo.ca/.

Use your Western User ID and password to login to WebCT Owl.
If you don't see the WHMIS course, you will need to be set up by sending your name, student number and department affiliation to Frank Lee, at slee785@uwo.ca.

Once you have received the WHMIS certificate, save it to your computer, and send a copy to the following people:
The Departmental Health & Safety Officer, Margaret Moulton: mmoulto@uwo.ca
Your lab supervisor

# 12. TECHNICAL FACILITIES

***1. Material Preparation*** **- Stephen Wood**

This laboratory prepares regular thin sections for petrographic studies and polished faces for minerals, fluid inclusions, and electron microprobe analysis. Help is provided with sawing or crushing and pulverizing samples for mineral separation and analysis. Samples are impregnated when necessary, and when required, stained for feldspar and carbonates. Thin sections are made of salts and small grains, crystals, and special materials are polished. We provide assistance to other University departments as well.

***2. Geoanalysis and Soil-Water-and-Plant (SWAP) Testing Laboratories*** **– Charles Wu**

The Geoanalysis and SWAP Testing Laboratories is located in the Earth Sciences Module of the Biotron Research Centre providing analytical facilities for students, staff and faculty members from the department, other faculties as well as from other universities, government agencies and industries to study chemical compositions of various geological materials, from rock specimens, sediments and soil, marine and glacial deposits, coal, ores to water and environmental samples.

Four major instrumental techniques are employed, X-ray Fluorescence Spectrometry (XRFS), Inductively Coupled Plasma - Atomic Emission Spectrometry (ICP-AES), Ion Chromatography (IC) and Gas Chromatography (GC). They provide a wide element coverage and concentration range for routine analysis.

A. The XRF laboratory is equipped with one Philips PW-1480 sequential wavelength dispersive spectrometer (WDS) with a Rh X-ray target and six analyzing crystals as well as a Bruker-AXS S2 energy dispersive spectrometer (EDS) with a Pd X-ray tube. Both fused glass disk and pressed powder pellet can be prepared for determining major, minor and trace constituents in the specimen. Due to its dynamic range of concentration determination, minimal sample preparation requirement, low unit cost and high precision and accuracy, XRFS has long been favoured as the most popular general purpose instrumental analysis technique for "bulk" chemistry of a wide variety of solid materials. The added "UniQuant" software made it possible to analyze loose powder, thin film, smaller quantities and irregular shape samples as well as to measure the thickness of thin layers on a known substrate.

B. The fully established ICP-AES laboratory is equipped with a Perkin-Elmer Optima 3300 Dual View atomic emission spectrometer and a Cetac ASX-500 autosampler. ICP-AES employs an Ar plasma as the emission source and its very high temperatures (up to 10,000 K) ensure efficient atomization of the atomic and ionic emission lines of the analytes. ICP-AES is a versatile multi-element solution technique for analyzing any materials that can be placed into solution. It exhibits very wide linear response ranges of more than 5 orders of magnitude, making it possible to determine major, minor and trace elements in a single sample preparation. The on-line addition of internal standard made the correction for matrix diversity simple and fast.

C. The IC laboratory has a Dionex ICS-3000 reagent-free ion chromatography system with a gradient pump and a AS50 autosampler. The ICS-3000 is configured to analyze common anions (fluoride, chloride, bromide, nitrite, nitrate, phosphate and sulfate) or cations (sodium, potassium, calcium, magnesium, and ammonium) in water samples (river, lake, pond, rain and drinking waters).

D. The newly established GC laboratory is equipped with an Agilent 7890 GC with a micro electron capture detector (uECD) and a thermo-conductivity detector (TCD) and an Agilent 6850 GC with a mass spectrometry detector (MSD). There is also a portable Agilent 3000A micro GC available for gases ($H_2$, $O_2$, $N_2$, CO, $CO_2$ & $CH_4$) analysis on site. At present, the GC lab is setting up for determination of hydrocarbons, pesticides, herbicides and PCB's extracted from soil, sediments, water or plant tissues.

*3. Electronic Instrumentation Lab* - Barry Price
Technical guidance is provided to students, staff and faculty on both hardware and software issues. The lab provides design construction and modification of commercial units for adaptation to our specific needs for student laboratories and research. The lab is also responsible for servicing, calibration and maintenance of undergraduate and research instrumentation. Computing laboratory maintenance and network administration, along with instructions to teaching assistants on operation of undergraduate laboratory equipment, is provided to the department. General infrastructure support and control of audio/video equipment and other teaching aids are provided.

*4. Mechanical Instrumentation Lab* – Jon Jacobs
This lab performs equipment modifications and adaptations to meet the department's specific requirements for student, laboratory and research support. Jigs, fixtures and specialty tolls are provided to departmental users and other campus users as requested. Sample cubes are prepared for use in the High Temperature-High Pressure laboratory on an ongoing basis. Repair and maintenance of instruments and laboratory apparatus are undertaken on a regular schedule.

*5. X-ray Diffraction and Microdiffraction Laboratory* – Roberta Flemming
The X-ray Diffraction and Microdiffraction Facility provides facilities for powder and single crystal analysis. It houses a CFI-funded Bruker DISCOVER X-ray diffractometer with 50-500 micron beam, q-q geometry, XYZ sample stage, microscope with CCD camera, and General Area Detector (GADDS), to obtain diffraction data from discrete mineral grains as small as 50 microns in diameter. This allows X-ray examination of minerals in situ in a variety of mount formats, such as rock slabs, polished sections or microprobe mounts. This technique is non destructive and requires minimal preparation. The laboratory features EVA and TOPAS software, to perform phase identification, profile fitting, Rietveld refinement of crystal structures, using powder data. The laboratory also houses a Rigaku X-ray diffractometer (q-2q), Debye Scherrer camera, and single crystal precession camera. This facility offers services to members of the Department, the University, and the general research and industrial communities.

*6. Alan D. Edgar Laboratory of Electron-Probe Microanalysis* – Roberta Flemming
The facility offers microanalytical services to the members of the department, as well as the general research and industry communities. The laboratory houses:

(i) an NSERC-funded JEOL JXA 8600 electron microprobe acquired in 1986. This microprobe has one energy-dispersive (EDS) and four wavelength-dispersive (WDS) spectrometers capable of detecting and quantifying all elements heavier than boron. The instrument is also equipped with backscattered and secondary electron detectors. The microprobe is fully automated by a computer system acquired through an NSERC equipment grant. It is possible to perform complex state-of-the-art matrix correction

calculations to obtain chemical composition of thick samples, particles as well as thin films. The system also has high-resolution digital image analysis capabilities.

(ii) a Cambridge Stereoscan 250 Scanning Electron Microscope (SEM) donated to the Department by Imperial Resources Ltd., Calgary, in 1995.

(iii) an NSERC-funded Edwards AUTO 306 high-vacuum carbon/metal evaporator purchased in 1995.

(iv) two Zeiss research optical microscopes.

*7. Suffel Collection* - Norm Duke, Curator

The Suffel Collection is composed of ore suites and was initiated at Western by Dr. Rod McDonald about 1940. In 1946-47 Dr. Gordon Suffel began to reorganize and add to this nucleus. By the early 1970s gifts from faculty, students and donations by interested mining companies amounted to about 15,000 catalogued specimens. Subsequent to his retirement in 1975 the Suffel Collection has been augmented primarily by sampling on student/faculty fieldtrips and from rock suites utilized in theses on the geology of mineral deposits. This latter phase of collection was initiated by R.W. Hutchinson, has been carried on by R.W. Hodder and most recently by N.A. Duke. The collection now consists of more than 200,000 catalogued samples. Although most of the original suites were collected from ore deposits in North America, the collection now has a much more international scope.

The Suffel Collection is a valuable resource for mineral deposit research, from conventional metallogenic studies to investigations into the susceptibility of differing ores to weathering. Having a range of sample material from widely differing deposit types is becoming increasingly important as many of the mines represented in the collection are now closed and inaccessible. More than other specialties within the Earth Sciences, comparative studies are central to research into the subtle differences shown by broadly similar deposit-types. Housing such a large number of ore suites under one roof is unique in North America.

The samples are available for teaching, research and display purposes. Several hundreds have sections suitable for microscopy. The collection is more freely available to senior undergraduate and graduate students, faculty and alumni. Your interest in this collection is earnestly solicited. We encourage anyone having the opportunity to collect suitable material to do so and donate it to the department, along with an appropriate description and details of location and date.

*8. Dana Collection* – Roberta Flemming, Curator

The Dana Collection provides access to an impressive collection of minerals from North America and to a lesser extent globally. This collection was started by Professor G.G. Suffel and was named after Dana's System of Mineralogy. Several subsequent donors have added minerals to the collection. These minerals comprise several displays in the department and may be borrowed as research specimens with the proviso the borrower provides to the Dana Collection an electronic copy of any data acquired, and recognition in subsequent publication.

# 13. RESEARCH FACILITIES

(1) CRYSTAL-CHEMICAL AND GEOCHEMICAL STUDIES OF EARTH MATERIALS - Michael Fleet

High-temperature furnace; equipment for hydrothermal synthesis; Single crystal x-ray diffractometer (Chemistry, UWO); x-ray diffraction equipment.

(2) GEOPHYSICAL EXPLORATION METHODS –Gerhard Pratt, Robert Shcherbakov, John Brunet, Barry Price

Sensors and Software PulseEKKO 100 ground penetrating radar system; Worden and Sharpe Geodetic gravimeter; digital fluxgate and proton precession magnetometers; Nikkon total station survey instrument; MAXMIN II horizontal loop EM system; OYO 12-channel exploration seismograph with vertical and horizontal geophones; various hand-held GPS units. Other equipment, including Lacost-Romberg G-type gravimeters and Scintrex Omni-mag magnetic gradiometer and VLF systems are available for use at field school.

(3) PHYSICAL PROPERTIES OF EARTH AND OTHER MATERIALS UNDER EXTREME PRESSURES AND TEMPERATURES- Rick Secco

In two laboratories high pressure and special auxiliary experimental facilities comprise the following items of equipment: 200-ton capacity cubic press (pressure up to 10 GPa); 1000-ton capacity cubic press (7 GPa), temperature ranges in both presses up to 2,000$^{o}$ C;Walker Module (20 GPa, 2500$^{o}$ C); 3000 ton press (25GPa, 2500$^{o}$C)*; computer numerically controlled micro-machining facility; Nicolet digital oscilloscope; Solartron 1260 Gain Phase Impedance Analyzer, 1500$^{o}$ C furnace, Dupont DSC/DTA./TGA Thermal Analysis equipment and 500$^{o}$ C vacuum electrical conductivity apparatus

(4) SEISMIC STUDIES - Robert Mereu, Gail Atkinson, Bernie Dunn

30 broadband 3-component VSAT telemetered seismograph stations in Ontario, operated on behalf of the POLARIS consortium and Ontario Power Generation (including the Southern Ontario Seismograph Network); POLARIS central satellite communications hub and data archival facility; distributed UNIX network including DEC and Pentium based computers with approximately 1 terrabyte disk storage; DLT tape backup system; GLOBE-Claritas and Seismic Unix seismic processing systems.

(5) LABORATORY FOR STABLE ISOTOPE SCIENCE – Fred Longstaffe (Director), Neil Banerjee, Elizabeth Webb, Christine White, Kim Law (Manager)

The laboratory facilities, located in the Western Science Centre and the Biological & Geological Sciences Building, contains state-of-the-art equipment for light stable isotope analysis of samples of geological, archaeological, biological and environmental interest. Four fully-automated, triple-collecting, mass spectrometers (Prism-II, Optima and two ThermoFinnigan Delta PlusXL) with micro-sampling capabilities and/or dual-inlet systems, and/or multi-ports are available for the analysis of $CO_2$, CO, $O_2$, $H_2$, $N_2$ and $N_20$ gases. The mass spectrometers are coupled with various peripheral machines, as outlined below, which permit automated on-line and/or continuous-flow isotope analysis with minimal sample preparation.

The MultiPrep system and/or the GasBench with carbonate option and CombiPal autosampler can be used for the isotope analysis of O and C in carbonates, C of dissolved inorganic carbon and O and H in waters, and soon – nitrogen and triple-oxygen-isotope analysis of nitrous oxide. The UV laser ablation system, with the adjoining $BrF_5$ extraction line including dual chamber capabilities, can be employed for the determination of $\delta^{18}O$ values of phosphates and carbonates

and triple-oxygen-isotope measurements in silicate minerals. The Costech elemental analyzer provides C and N isotope measurements of organic matter. High temperature pyrolysis reactions required for the extraction of oxygen and hydrogen from organic matter for isotopic analysis can be performed on the ThermoChemical elemental analyser (TC/EA) with zero blank autosampler.

The Agilent 6890 gas chromatograph plus GC thermochemical reactor can be used to analyze gas species and carbonic gases within fluid inclusions (including an on-line fluid inclusion release system) for C, N, O and/or H isotope analysis. A gas preconcentration device is also available to facilitate the isotopic analysis of trace quantities of low molecular weight gases. The laboratory also contains conventional vacuum lines for the extraction of gases for the following stable isotope measurements: (i) O-isotopes of silicate and oxide minerals using $ClF_3$ reagent; (ii) O-isotopes of phosphate minerals including bioapatite using $BrF_5$ reagent; (iii) C- and O-isotopes of carbonate minerals (high and low temperature equilibration chambers available); (iv) O-isotopes of water; (v) C-isotopes of solid organic matter, including collagen and hydrocarbons; and (vi) H-isotopes of water, clay minerals and other hydrous silicates using either Cr or Zn reduction methods combined with heating with RF, torch or combustion furnaces, as required.

The laboratories also contain equipment for the preparation and characterization of samples. Facilities are available for lake sediment core processing, mineral (including clays) and ostracode separation (high and low speed refrigerated centrifuges, freeze-driers, high gradient liquid magnetic separator, ultrasonic probes, vertical clean bench, etc). Microscope-assisted sampling devices including an automated micro-drilling system are also available. Sample characterization equipment include a computer-automated Rigaku high brilliance rotating anode X-ray diffractometer, a Vector-22 FTIR spectrometer, a Linseis DTA-TG system, a Fisons 1108 elemental analyzer for determining C, N, S and O concentrations and cold cathodoluminescence, fluorescence and petrographic microscopes.

### (6) PETROLOGY – H. Wayne Nesbitt and Roberta Flemming

The Experimental Analysis Laboratory at UWO includes high pressure and high temperature equipment.

Rocks may be synthesized at mantle to crustal conditions using two piston-cylinders to obtain conditions up to 2000:C and 0.3 to 4 GPa and 3 furnaces with gas-mixing options.

The analytical equipment includes a new micro-Fourier Transform infrared spectrometer with a custom-made gas-mixing heating stage that operates to 1600°C. Materials can be analyzed over areas less than 100 microns across while heating. The micro-FTIR system is being used for a variety of samples including glasses, minerals, rocks, organic matter, and environmental samples.

### (7) EXPERIMENTAL MINERALOGY LABORATORY – Roberta Flemming

This facility houses a CM furnaces Rapid Temp Vertical Tube furnace, for continuous operation at 1700°C, and continuous temperature monitoring (via Specview software). It also houses a Thermolyne 8-step programmable muffle furnace, drying oven, and weighing balance. This laboratory engages in high temperature mineral and glass synthesis, as well as variable-temperature cation equilibration studies. Minerals are characterized by a variety of techniques including Rietveld crystal structure refinement from X-ray diffraction data and

determination of local cation arrangement by nuclear magnetic resonance (NMR) spectroscopy (available in Chemistry, UWO). A variety of computer programs for performing cell parameter refinement, peak indexing, Rietveld refinement, crystal structure visualization, as well as NMR peak fitting and ab initio electronic structure modeling, are available in the laboratory.

This facility also engages in measurement of physical properties of meteorites mass, bulk volume, bulk density, grain volume and grain density. This facility houses a Helium pycnometer for grain density determination.

**(8) PHYSICAL AND CHEMICAL HYDROGEOLOGY LABORATORY - Robert A. Schincariol**

The Hydrogeology Laboratory is equipped with a wide range of equipment to facilitate research in both surface water and ground water processes with an emphasis on ground water flux in subsurface environments and contaminant/thermal migration and dispersion. The Hydrogeology Laboratory is also linked with the Biotron's state-of-the-art ecohydrological climate chamber to conduct studies on permafrost and active layer hydrogeology. The chamber will accommodate soil monoliths up to 1.5 x.1.5 x 4 m high under controlled atmospheric conditions such as solar radiation, precipitation, temperature (- 40 to +25°C), wind speed, and greenhouse gases. In addition the lab is supported by the Biotron's Soil and Water Testing Laboratory which has a complete range of analytical intrumentation (including GC-MS, IC, ICP) to characterize minerals, organic matter, waters, and gases.

**(9) COMPUTATIONAL LABORATORY FOR FAULT SYSTEM MODELING, ANALYSIS, AND DATA ASSIMILATION- Kristy Tiampo**

The computational modeling and data assimilation lab contains more than twelve state-of-the-art computer workstations designed for visualization and data analysis of large quantities of geodetic and seismic data, attached several multi-disk storage arrays with more than five terabytes of capacity. These workstations are equipped with the latest in commercial and academic research software designed for the analysis of geodetic data and remote sensing images, modeling of the earthquake system using finite element analysis and integrated computational fault models, and includes the capability to perform parallel computing, all for the express purpose of performing near real-time data assimilation and inversion analysis in order to better understand the earthquake fault system.

**(10) GLACIAL GEOLOGY - Stephen R. Hicock**

Hydrometer and carbonate analyses of mud; heavy liquid separation of minerals.

**(11) GEOMICROBIOLOGY - Gordon Southam**

The geomicrobiology laboratory is a core bacteriological culture facility possessing basic and advanced imaging capabilities: Nikon Labophot phase contrast microscope; Nikon Optiphot-2 uv-vis light microscope equipped for Nomarski Interference Contrast imaging; Nanoscope III Scanning Probe Microscope, which allows three-dimensional imaging and measurement of unstained and uncoated structures in air or fluid from molecular to micron scales. Analysis of bacteria-metal/mineral interactions is supported through the Biotron Imaging Facility, possessing CM10 and EM420-EDS transmission electron microscopes (Reichert Ultracut E ultramicrotome) and a Zeiss LSM Duo scanning confocal laser microscope, and through SSW (Time of Flight-

Secondary Ion Mass Spectrometry) and the Nanofabrication Laboratory (FEG-SEM-EDS with focussed ion beam milling and sectioning capabilities).

**(12) GEOCHEMISTRY AND KINETICS OF MINERAL-FLUID INTERACTIONS - H. Wayne Nesbitt**

Reactions between minerals and solutions or gases occurs primarily at the interface between the solid phase and the fluid. An understanding of the kinetic rate and mechanism of mineral-fluid interactions necessarily requires study of the interface. Our group has the requisite analytical equipment and a modern preparation laboratory to study the surface of insulators (e.g., silicates), semiconductors and conductors (oxides, sulfides and native metals). The equipment includes an X-ray Photoelectron Spectrometer capable of analysing the composition, of determining the oxidation state and of evaluating bonding partners of elements at mineral surfaces. The same instrument allows mapping of solid surfaces for composition and oxidation states at the 2-5 micron scale, a capability available in no other Geological laboratory in North America.

The group has excellent relationships with Surface Science Western, including ready access to their surface analytical equipment. These include Dynamic and Time of Flight Secondary Ion Mass Spectrometers, Auger Scanning Spectrometer, Field Emission SEM and Digital Video and Still Imaging Equipment.

The group also has very close working relationship with electron spectroscopists and Materials Scientists of the Chemistry Department (G.M. Bancroft, D. Shoesmith, J. Noel and T.K.Sham). As a result of this special relationship, our group has close affiliation with the Canadian Synchrotron community, including the Canadian Institute for Synchrotron Radiation (CISR) and the Canadian Light Source. There is consequently ready access to the three Canadian synchrotron beam lines located at the Aladdin ring in Wisconsin. The combined technical expertise of our group, the SSW group and the Materials Sciences group in Chemistry provides, for Geologists and Geochemists interested in mineral surface reactions, the strongest support available in Canada and support which is comparable with any in the world.

**(13) WESTERN CANADA DIGITAL WELL LOG FACILITY - Guy Plint**

This facility is located in a new, purpose-built lab, and includes a microfiche printer and a large well log library (donated by Imperial Oil Ltd.) comprising $>$300,000 exploratory boreholes encompassing the entire Western Canada Sedimentary Basin. We also have access, through a dedicated workstation, to an on-line digital well log library and correlation software, donated by Diverstco Inc. These large data sets form an essential resource for graduate students investigating the sedimentary history of this basin, as well as providing an invaluable teaching tool.

**(14) STUDIES OF STRUCTURE, ELASTICITY AND SPECTROSCOPY OF PLANETARY MATERIALS UNDER EXTREME CONDITIONS USING DIAMOND ANVIL-CELLS – Sean Shieh**

This laboratory primarily focuses on the understandings of structures and dynamics of the Earth's and planet's interiors. The other part of research emphasizes on the characterizations of broad-defined planetary materials and discovers novel and superhard materials under extreme conditions, i.e. 0.0001 – 300 GPa and 4-4000 K. The pressure is generated by a diamond anvil cell (0.0001 – 300 GPa) and temperature is achieved by either resistive heating (up to 1200 K) or a laser heating system (up to 4000 K). The materials are characterized by (1) synchrotron x-ray

diffraction and inelastic x-ray scattering (2) micro-Raman spectroscopy, (3) infrared spectroscopy.

**(15) ENGINEERING SEISMOLOGY TOOLBOX LABORATORY – Gail Atkinson, Karen Assatourians**

Five UNIX workstations and server with custom software for Engineering Seismology research and analysis, hosted on a virtual laboratory website (www.seismotoolbox.ca). Other standard data analysis software packages such as SAC and matlab also available.

**(16) NONLINEAR GEOPHYSICS MODELING LABORATORY – Robert Shcherbakov** (http://publish.uwo.ca/~rshcherb)

The main focus of our research is to understand the physics of various complex nonlinear phenomena observed in nature. Such behavior can be found at different temporal and spatial levels of organization of natural systems and is characterized by highly nonlinear interactions among their constituent parts and behavior far from equilibrium. The undertaken research involves extensive computer modeling, data analysis, and visualization. The following topics are of particular interest and addressed in our studies:

- Earthquake physics and statistics. Analysis of temporal and spatial scaling properties of earthquakes and aftershocks. Large-scale computer simulations of seismicity. Earthquake hazard assessment and forecasting.
- Continuum damage and fracture mechanics. Applications to fracture processes in solids and the Earth's crust. Numerical and analytical modeling of the evolution of damage, nucleation and interaction of cracks.
- Extreme events in nature and society. Analysis of record breaking events in driven nonlinear threshold systems.
- Planetary geodynamics and the internal structure of the Earth and planets. Cross-correlation analysis of gravity and topography signals to infer the evolution and elastic properties of the lithosphere.
- Self-organized critical behavior in nonlinear dissipative complex systems. Analysis of pattern formation and criticality in cellular automata and their application to natural phenomena. Stochastic Monte-Carlo simulations of various cellular automata.

**(17) EARTH AND PLANETARY MAPPING – Gordon Osinski**

Four PC Desktop computers equipped with ESRI ArcGIS, PCI Geomatica, Geosoft Oasis montaj, and Adobe Design Premium CS3, suitable for various earth and planetary mapping applications. In addition, a range of Digital Field Mapping tools are available: Panasonic Toughbook Laptops equipped with GIS software; Trimble Juno Field Computers equipped with GPS and ESRI Arcpad; handheld Garmin GPS units.

**(18) HIGH RESOLUTION EARTH AND PLANETARY MATERIALS IMAGING FACILITY – Gordon Osinski, Desmond Moser, Neil Banerjee**

This facility, funded by the Western Academic Development Fund, features high-resolution microscopic imaging systems for novel optical analysis of Earth and planetary materials in advance of microbeam and isotopic analysis. Five Nikon microscopes are available: three compound polarizing microscopes equipped with different combinations of transmitted (TL) and reflecting light (RL) and UV fluorescence illumination and imaging capabilities; two high magnification stereomicroscope with visible and UV fluorescence illumination and imaging

capabilities.

**(19) LABORATORY FOR DEFORMATION STRUCTURES – Dazhi Jiang**

Microstructural Analysis Facility: one EBSD detector attached to a Hitachi SEM; four state-of-the-art (Leica and Nikon) microscopes with digital cameras and image analysis software; one precision-cut diamond saw; one Vibratory Polisher.

Field Mapping Facility: one Toyota Tacoma truck; one Trimble Pathfinder ProXRT receiver, three Trimble GeoXH handheld units; three SLR Nikon digital cameras; one generator; many sets of field geology tools and camping gear.

Computational Facility: Four state-of-the-art computer workstations with the latest software installed (including FLAC2D 6.0; FLAC3D4.0; Mathematica 7; MathCad 14) and software developed by Dr. Jiang; one HP 47" plotter; 2 Laser printers; one Multimedia projector.

**(20) PETROLEUM GEOLOGY LABORATORY – Burns Cheadle**

This facility provides the tools required for comprehensive technical and economic assessment of petroleum plays, prospects and developed pools. It has three purpose-built high-performance exploration workstations with dual 30" high-resolution flat panel monitors, running a comprehensive suite of industry-standard petroleum assessment software. Currently, the software suite - largely made possible by generous donations from vendors - includes Schlumberger's Petrel reservoir modeling system, SeisWare International's SeisWare™ and Divestco's WinPICS, WinPICS 3D, Synthetic Suite and VistBridge seismic interpretation packages, Fugro-Jason's PowerLog petrophysical analysis software, geoLOGIC's geoSCOUT™ data and mapping system, IHS Canada's AccuMap™ and Petra data and mapping packages, and Energy Navigator's Value Navigator economic evaluation software. The workstations are networked through a dedicated server that manages software license administration and shared project files.

## Surface Science Western

Surface Science Western (SSW) is a consulting and research laboratory at The University of Western Ontario, handling all aspects of material surface properties. The laboratory has a long record of timely and comprehensive analytical services to industries producing metallic and plastic components. Supporting these services is a facility with advanced surface and microscopic analytical equipment and a staff of fourteen scientists and engineers. Surface Science Western also has supporting research and programs in corrosion science, thin film deposition and surface analysis. In addition, the laboratory acts as a teaching and research centre for academics interested in surfaces and microscopic areas.

## SHARCNET

The Department also has access to SHARCNET which is an ORDCF (Ontario Research and Development Challenge Fund) and CFI (Canada Foundation for Innovation) funded project to develop a network of high-performance Bewulf computing clusters. The primary Beowulf clusters are deployed at the University of Guelph, McMaster University, and the University of Western Ontario. This resource is utilized by several groups, including those investigating the physics and chemistry of advanced materials, and fluid dynamics in engineering, astrophysics and geophysics.

# 15. SCHOLARSHIPS, FELLOWSHIPS AND OTHER AWARDS FOR GRADUATE STUDENTS

## I - MAJOR AWARDS

### NSERC Scholarships - PGS-M, PGS-D; CGS-M, CGS-D

The most prestigious graduate fellowships in Canada are the NSERC (Natural Sciences and Engineering Research Council) PGS-M and PGS-D (PGS stands for Post Graduate Scholarship), and the CGS-M and CGS-D (CGS means Canada Graduate Scholarship). The PGS-M and CGS-M awards are for one year only; the PGS-D and CGS-D awards for periods up to 3 years. Applications should be made for the PGS-M for the first or second years of postgraduate study; PGS-D similarly is for the third and fourth or fourth and fifth years of postgraduate study. The holder of a multi-year award must continue to be a fulltime candidate for a higher degree and academic performance is satisfactory. Scholarship support is available for a maximum combined duration of four years.

Award holders may be offered up to a full TA, but award holders are usually restricted to a maximum of a half TA. Thus an NSERC scholarship holder may receive the equivalent of $22,000-44,000/annum. Separate applications for the CGS series of scholarships are not required; NSERC automatically selects these winners from the general NSERC competition. (International students are not eligible to apply for NSERC scholarships).

Application deadline: Historically, mid-November in each year to NSERC; however, departmental and internal UWO deadlines also apply; applicants must check for current dates.

| | | |
|---|---|---|
| Values: | PGS-M | $17,300 for one year |
| | PGS-D | $21,000 per annum for up to 3 years |
| | CGS-M | $17,500 for one year |
| | CGS-D | $35,000 per annum for up to 3 years |

Recent winners from this department: Robert Lodge, Ian Power, Christopher Couëslan, Lisa Friedrich, Allison Daley, Sean Bosman, Carl Ozyer, Alexandre Aubin, Michael Rutter, Céline Dupuis, Rebecca Vanderspiegel, Sam Russell, Jessica Metcalfe, Brendt Hyde, Matt Izawa, Caitlin Latimer, Ian Power, Elizabeth Ross, Ian Foster, Melissa Battler, Marianne Mader, Rachel Schwartz-Narbonne, Alexandra Pontefract, Michael Craig, Haley Sapers, Joel Shank, Colin Sproat, Heather Henry, Olivia Greaves, Candace Brintnell, Monika Haring.

### NSERC Industrial Postgraduate Scholarships

This award is based on a specific research proposal involving a student, a faculty supervisor and a collaborating company. Supervision of the project will be by a university faculty member and a researcher from the collaborating company. Duration of the award is 2 years. Students must be Canadian citizens or permanent residents of Canada at the time of nomination; they must be enrolled as a fulltime candidate for a M.Sc. or Ph.D. degree at a Canadian university.

Two types of awards are available: a scholarship for the first and second years of postgraduate study, and a scholarship for the third and fourth years of postgraduate study. Maximum support at M.Sc. level: 2 years; Maximum total support: 4 years. Awards are made for tenure only at the nominating university. Tenure should normally begin within three months of the award being approved by NSERC. Students must spend a minimum of 20% of research time at the company on activities related to the thesis project. Award holders may be offered up to a full TA, but award holders are usually restricted to a maximum of a half TA.

Value: NSERC Industrial Scholarship Minimum $21,000 per annum ($15,000 from NSERC funds + a minimum of $6,000 from the sponsoring company).
Application deadline: Apply any time.

Recent winners: Ronnie Therriault, Phil Geusebroek, Jessica Rylaarsdam, Scott Parsons, Natalie Pietrzak, Jordan Laarman, Jim Renaud.

## Ontario Graduate Scholarship (OGS)

These awards are next to the NSERC awards in terms of prestige. A percentage of the awards are reserved for applicants on Student Visas. An OGS scholarship is awarded for one academic year, which may consist of two or three consecutive terms. Students may hold up to two OGS awards in the masters program, and up to four OGS awards at the doctoral level. Other awards may be held up to a total of $10,000 per year concurrent with the OGS award. OGS award holders may be offered up to a full TA, but award holders are usually restricted to a maximum of a half TA.

Value: $5,000 per term.
Minimum award duration: 2 terms.
Application deadline: November 18, 2009

Recent Winners from this department: Alexandre Aubin (declined), Sean Bosman, Wayne Edwards, Derek Smyth, Tyler Hayes, Rebecca Vanderspiegel, Xuezhao Bao, Krista Blears, Bogdan Varban, Ian Foster, Brendt Hyde, Derek Smyth, Ian Foster, Nathan Bridge, Andrea Sweny, Rachel Schwartz-Narbonne, Monika Haring, Gordon Campbell, Ryan Hladyniuk, Tom Ulanowski, Jenine McCutcheon, Tim Officer, Maija Raudsepp, Andrea Prentice, Alaura Singleton.

## Ontario Graduate Scholarships in Science and Technology (OGSST)

These awards are prestigious awards on a similar level to NSERC and OGS. Students must be full-time and already registered in a graduate program, in at least their second full-time term. Holders of other major awards may not be eligible to hold an OGSST, but the OGSST can be deferred up to a total of 3 terms.

Eligibility: Overall average of at least 80% or equivalent during the last 2 years of study at the postsecondary level. M.Sc. students can receive the scholarship for a maximum of 1 year, and Ph.D. students a maximum of 4 years. Ph.D. students are not eligible to hold this scholarship after their fourth year in the program. Students who transfer from a masters program to a doctoral program without completing the masters program will be eligible to hold an award for the fifth year of study in both programs. Applicants must apply for externally available scholarships (e.g. OGS, NSERC etc), and evidence of this must be provided by individuals who are applying for a second award or those who are to receive a second year of funding for a two

year award. Other awards up to a total of $10,000 per year can be held at the same time as the OGSST. OGSST award holders may be offered up to a full TA, but award holders are usually restricted to a maximum of a half TA.

Applicants should each complete an application similar to the NSERC postgraduate scholarship application and submit to the graduate program of the department.
Deadline: Traditionally April 1 each year, but the program is currently being re-designed.
Value: $15,000/year. Minimum duration: 2 terms; maximum duration 3 terms.

Recent Winners: Nicole Jacques, Wayne Edwards, Sam Russell, Michael Hay, Lisa Munro, Christopher Stott, Greg Wanger, Alexandre Aubin, Catherine Alexandrakis, Rebecca Macdonald, Deana Schwarz, Natasha Bumstead, Candace Brintnell, Nicolle Bellissimo.

## Mineralogical Association of Canada Foundation Scholarship

The scholarship is a prestigious award comparable in status and value to graduate scholarships provided by NSERC. Potential applicants will be of the highest academic standing and undertaking a novel and rigorous M.Sc. or Ph.D. research project. Applicants for this scholarship must be undertaking an M.Sc. or Ph.D. thesis program in one of the following fields: mineralogy; crystallography; geochemistry; mineral deposits; petrology.

Eligibility: (a) a student entering the second year of an M.Sc. program, or entering the second or third year of a Ph.D. program at a Canadian university; (b) a Canadian citizen enrolled in the above or equivalent programs at any university. Current application form must be used, accompanied by official transcript, references from supervisor and one other person familiar with your work, and a maximum 2-page outline of thesis project as per regulations of competition.

Deadline: May 1 to the MAC Scholarship office.
Value: $10,000.
Recent (inaugural) winner: Shannon Patrick Farrell

# II - UNIVERSITY AND DEPARTMENTAL AWARDS

## Environmental Science Graduate Scholarships

The Environmental Science Graduate Program (ESGP) will be offering approximately 6-8 scholarships to deserving new students. Each scholarship is worth $2,500. The eligibility criteria are:

Incoming students must have a minimum of 78% or high B+ based on the last two years of study, or the last ten full (or 20 half) senior level courses. Continuing students must meet the departmental conditions for progression through the program as well as a minimum requirement of 78% or high B+ based principally on all the graduate courses completed in the current program. Students receiving major scholarships such as President's Scholarship, OGS and NSERC are not eligible.

Recent winners: Charley Murphy, Elizabeth Webb, Lyne Sabourin, Heather Gingerich, Jennifer Heidenheim, Sam Russell.

## Environmental Science Travel Awards

Recent winners: Sam Russell, Greg Wanger

**Western Graduate Research Scholarship** - Nominations are made for eligible students by the graduate programs in each department to the Faculty of Graduate Studies at the beginning of each term - students do not apply themselves.

The Department of Earth Sciences has retained the principle of the IGSS in providing financial assistance to reduce the high international academic fees of eligible international students down to an approximate level of fees that Canadian students pay during the funding eligibility period of their studies.

Generally speaking, the students will see the funding provided as a credit toward their tuition fees.
Value: various.

## G. Gordon Suffel Fellowship for Graduate Studies in Applied Economic Geology

Available to students who have been accepted into, or who are registered in the graduate program with an average of B+ or higher, with a thesis in applied economic geology, i.e. field-based study of those aspects of metal concentrations in the Earth's crust which make them mineable. The fellowship is worth $7,500 per eight months of the academic year; awarded in part as student income and in part as a research grant to support that student's work. It is awarded within the FGS funding period - M.Sc. two years, Ph.D. 4 years – and may be renewed annually for up to three years beyond the initial year, with satisfactory performance and progress. The recipient will be asked to give a lecture on his research to the Department during the first term of the award. The recipient may be asked to assist in curating the Suffel Collection, a library of mineral and rock specimens, not exceeding 3 hours/week.

Recent winners: Miroslav Sidor, Erika Greiner, Jim Renaud, James Masters, Jeff Cormier, Duncan Bain, Natalie Pietrzak, Jordan Laarman.

## Arcangelo Rea Family Foundation Graduate Tuition Scholarship

Aimed at exceptional students involved in the Faculty of Science's research in environmental issues with preference being given to Earth Sciences students. Previously, one award @$3,000; Effective spring 2008: Value: two awards, each up to $2,000 per year currently and usually applied to tuition costs & activity fees.
M.Sc. max. two years. Ph.D. up to four years with a possible extension to the fifth year. Eligible candidate(s) is/are nominated by departmental committee.

Recent winners from this department: Jennifer Heidenheim, Carl Ozyer, Shawna Davy, ZhenZhen Huang, Ayumi (Mae) Hyodo, Jess Metcalfe, Ian Power, Kegan Farrick, Sam Russell.

## Alan D. Edgar Award in Petrology

Awarded biennially (each even year) to a student entering the second year of a graduate program and specializing in petrology. Selection is based on ingenuity in, and enthusiasm for, petrology.

The student also must have attained a minimum 78% average in their first year as a graduate student. The recipient will be selected by an Earth Sciences Departmental Committee that includes at least one member of the Graduate Committee. This award was established through Foundation Western by donations received from friends and family in memory of Dr. Alan D. Edgar. Value: $1,000 cheque, OR a piece of field equipment, such as a Brunton compass or a GPS receiver, and the remainder as a cheque (recipient's choice).

Deadline: June 30 of award year, so departmental deadline to receive nominations is June 15.
Winners: Daniel K. Liu (inaugural award), Celeste Dufresne, Matt Izawa, Nathan Bridge.

## Robert and Ruth Lumsden Graduate Awards in Earth Sciences (up to 5 awards every year)

Awarded to graduate students in the Department of Earth Sciences on the basis of financial need and academic achievement (min. B+ average). These fellowships were made possible by a bequest to Foundation Western by the late Ruth V. Lumsden (B.A. '79) and Robert O. Lumsden (B.A. '78). Recipients will be selected by the Chair of Earth Sciences in consultation with a faculty committee. Value: $1,000 each.
Winners: Names not published.

## Robert and Ruth Lumsden Fellowships in Science (1 award every year)

Awarded annually to graduate students in any program in the Faculty of Science, with at least one reserved for students in the Department of Earth Sciences. These fellowships were made possible by a bequest to Foundation Western by the late Ruth V. Lumsden (B.A. '79) and Robert O. Lumsden (B.A. '78). Value: $1,000.

Recent winners from the department: Greg Oldenborger, Haitao Yang, Saugata Datta, Bogdan Varban, Xuezhao Bao, Carl Ozyer, Xavier Roca Argemi, Jessica Metcalfe, Ian Power, Matthew Izawa, Andrea Prentice, Jim Renaud, Andrea Prentice.

## Robert and Ruth Lumsden Graduate Award in Science

Awarded annually to graduate students in any program in the Faculty of Science, on the basis of financial need and academic achievement (min. B+ average). These fellowships were made possible by a bequest to Foundation Western by the late Ruth V. Lumsden (B.A. '79) and Robert O. Lumsden (B.A. '78). Value: $1,000.
Winners: Names not published.
Note: As the Department of Earth Sciences has its own awards from the Robert and Ruth Lumsden suite of awards, it is rare that Earth Science students will receive this award.

# Western Graduate Thesis Award

Recent winners: Ben Harwood, Kim Dalby, Celeste Dufresne, Wayne Edwards, Brendt Hyde, Matt Izawa, Robert Lodge, Rebecca Macdonald, Ayumi Mae, Greg Wanger, Pengfei Chen, Zhenzhen Huang, Andrea Prentice, Simon Auclair, Ian Power, Deana Schwarz, Shutian Ma, Alaura Singleton, Xueyang Yu, Nathan Bridge, ZhongYing Mi, Changcheng Li, Rebecca Macdonald, Bhairavi Shankar, Reynold Sukara, Duncan Bain, Natasha Bumstead, David Cooper, Piotr Angiel, Robin Buckley, Ryan Hladyniuk, Soushyant Kiarasi, Liane Loiselle, Rachel Schwartz-Narbonne.

### William Fyfe Scholarship in Environmental Sustainability

Recent winners: Simon Auclair, Laura Donkervoort, Ian Power, Natalie Pietrzak, Jeremiah Shuster, Jim Renaud.

## III – CONFERENCE, TRAVEL AND FIELD WORK BURSARIES

These are designed to provide partial support for students presenting papers at scientific conferences or for field expenses associated with thesis research or with a specific graduate course.

### Geophysics Travel Scholarship

Up to 3 awards of $550 are given every year to students enrolled in the Geophysics program for travel to a scientific conference to present a paper.

Recent winners from the department: Erika Szabó, Tyler Hayes, Johari Pannalal, Xuezhao Bao, Xueyang Yu, Jeff Markle, Nelson Cho, Shutian Ma, Patricia Perlock, Nelson Cho, Arslan Akhmetov, Caitlin Latimer, Laura Thomson, Rie Miyoshi, Soushyant Kiarasi, Hadi Ghofrani, Zhong Ying Mi, Laura Sanchez.
Deadline: Twice a year as advertised, in the Fall and Winter terms.

### R.W. Hodder Field Bursary

A total of nine bursaries of up to $500 will be given each year to undergraduate and graduate students. They are awarded on the basis of financial need, to enable students to participate in graduate or undergraduate student field trips and workshops in the geology of mineral deposits. The selection of the students will be made by the Faculty of Graduate Studies (for graduate students) and the Financial Aid Office (for undergraduate students) at U.W.O. upon recommendation and prior approval by the majority of a committee of three within the Department of Earth Sciences. Applications will be accepted by the Chair of the Department at anytime, and will be considered at the time(s) appropriate to the event(s) for which the funds are requested.
9 Awards of up to $500 each, awarded every year.
Recent winners: Not published.

### Department of Earth Sciences Outreach Award

The Annual Outreach Award will recognize the commitment to outreach that departmental graduate students have demonstrated throughout the year.

Value: First prize $100; Runner-up $50.
Deadline: June 15
Eligibility: Exceptional dedication to outreach activities during the period July of one year through the end of June of the next year.
To apply, graduate students should send to the Chair of the Outreach Committee (Dr. C. Tsujita for 2009-10) a review of their outreach activities for the pertinent period, with a description of the activity, the date, the audience (e.g. school, grade(s) and approximate number of people), and indicate the approximate time spent on preparation and delivery.

Recent winners: Julie Sanders, Denis Tetreault (runner-up), Richard Léveillé, Greg Clarke, Shannon Farrell (runner-up); Shannon Farrell, Matt Devereux (runner-up), Jennifer Heidenheim, Allison Daley, Jessica Rylaarsdam, Deana Schwarz, Matt Izawa, Meriem Grifi.

## IV - OTHER AWARDS

This is only a partial listing. Students are encouraged to review regularly additional information available on the web, stated within the departmental newsletter, posted on departmental bulletin boards and posted in the School of Graduate and Postdoctoral Studies office.

### American Association of Petroleum Geologists Graduate Research Grants in Aid

Purpose: To foster research in the geosciences by providing support to graduate students in the earth sciences whose research has application to the search for and development of petroleum and energy-minerals resources, and to related environmental geology issues. Grants are to be applied to expenses directly related to the student's thesis work, such as summer field work, laboratory analyses, etc. Not to be used for conferences, salaries, tuition, room and board. Award based on merit, and in part, on the financial needs of the applicant. M.Sc. students may receive a maximum of one grant and Ph.D. candidates may receive a maximum of two grants. No more than two grants will be awarded to any one applicant during their graduate education.

Deadline: traditionally January 31 of each year, but check departmental deadlines.
Value: Various - to a maximum of $2,000 (US).
Recent Winners: Jeff Markle, Aditya Tyagi, Bogdan Varban, Michael Hay, Xavier Roca Argemi.

### Barringer Family Fund for Meteorite Impact Research

The Barringer Crater Company has established a special fund to support field work by eligible students interested in the study of impact cratering processes. The Barringer Family Fund for Meteorite Impact Research will provide a small number (3 to 5) of competitive grants each year for support of field research at known or suspected impact sites worldwide. Grant funds may be used to assist with travel and subsistence costs, as well as laboratory and computer analysis of research samples and findings. Masters, doctoral, and post-doctoral students enrolled in formal university programs are eligible.

Deadline: around mid-April each year
Value: $2,500-$5,000 USD
Recent Winners: Matt Izawa, Haley Sapers

### Canadian Society of Exploration Geophysicists Scholarship

Eligibility: career in exploration Geophysics in industry, teaching or research. Undergraduate or graduate students may apply.

Value: $1,500
Deadline: July 15
Recent winners: Baishali Roy, Haitao Yang, Michael Rutter, Claire Perry, Jackie Hope, Paul Balog, Charley Murphy, Sergey Samsonov, Catherine Alexandrakis, Arslan Akhmetov.

## Canadian Geophysical Union – Travel Bursary

Method of application: By letter to the CGU Secretariat. Please refer to the CGU Website (www.cgu-ugc.ca) for details.

Deadline: ~March 31
Value: $150-250, depending on distance travelled by recipient.
Note: Student members of the CGU will be notified by e-mail of the availability of this scholarship.
Recent winners: C. Rob Pinnegar, Xuezhao Bao, Xueyang Yu.

## KEGS Foundation Scholarship

Recent winners: A. Akhmetov, Xueyang Yu.

## Canadian Society of Petroleum Geologists Graduate Scholarships in Petroleum Geology and Marine Geoscience

Eligibility: graduate students attending a Canadian university in petroleum geology or marine geoscience. Must be a Canadian citizen or landed immigrant and be accepted into their second year as a fulltime graduate student. Award based on academic standing and merit.

Value: $1,500 - 3 awards, one for each of "Atlantic Provinces", Ontario/Quebec, Western Canada.
Deadline: May 1
Recent winner: W.S. Donaldson, M. Lumsdon, M. Kreitner.

## Canadian Institute of Mining, Metallurgy and Petroleum Student Essay, Graduate Competition

Theses judged in categories of Geology, Mining Engineering, Metallurgy, and Petroleum. Competing essays (theses prepared by students in partial fulfillment of requirements for course work) should have been screened by the appropriate university departments to ensure that only quality papers be presented for competition. No limit to number of words. Essays are judged on clarity of presentation and explanation. Official copy of thesis not required. Submission made via the Graduate Chair of the Department of Earth Sciences.
Value: First Prize - $1,000 in each category
Second Prize - $500 in each category
Deadline: February 1
Recent winners: P.S. Stewart, M. Lewchuk, C. Stanley

## Geological Association of Canada

Jerome H. Remick III Poster Award
Recent winners: Ben Harwood, Matt Izawa, Duane Petts

## Geological Society of America:

**Travel Grants**: Value: Up to $150/student
**Research Grants**: Value: up to $2,000.

Deadline: February 15 historically; applicants should check material within the home department. Provides partial support of M.Sc. and Ph.D. research. Applicants need not be members of GSA. Must use the current year's form.
Recent winners: Haitao Yang, Ed Hornibrook, Rob Carpenter, Jeff Markle, Michael Rutter

### Outstanding Student Research Award
Recent winner: Ed Hornibrook

### Alan V. Cox Award (Best student research proposal, Geophysics Division)
Value: Certificate; no monetary value; prestige.
Recent winner: Haitao Yang

### Mineralogical Society of America - Travel Award
Value: Various
Recent winner: Andrea Cade

### Northern Scientific Training Grant
Offered by the Canadian federal government to graduate students working in the Arctic, or on projects related to the Arctic. Funds are used for travel and expenses in getting to and from the Arctic research area. Deadline for applications: historically in October. Further information can be obtained from the current Chair of the Environmental Sustainability program (contact Ms. Holly Sanderson, hsanders@uwo.ca for more information).

Recent winners from the department: Sherrill Senior, Rob Carpenter, Carl Ozyer, Chris Stott, Jim Renaud, Peter Rotheisler, Andrea Cade, Phil Geusebroek, Lachlan MacLean, Ian Power, Simon Auclair, Alaura Singleton.

## Ontario Petroleum Institute Inc.
Awarded for an outstanding Master's thesis that is part of requirement for degree awarded in the Fall of that year or Spring next year. Subject must be relevant to Ontario sedimentary geology/geophysics or theory of hydrocarbon exploration and production. Copy of thesis must be submitted (will be returned after competition). Good writing and presentation skills are emphasized to encourage good communication skills as well as generate new ideas for hydrocarbon exploration and development.

Deadline: May 18
Value: $300
Recent Winner: D. Harper

## Peacock Prize
An annual award given by the Walker Mineralogical Club to a deserving student currently attending an Ontario university or college. Preference will be given to a graduate student. The student should engaged in the study of pure or applied mineralogy, including crystallography, petrology, or geochemistry. The award is given in memory of Dr. M.A. Peacock, professor of crystallography and mineralogy at the University of Toronto, and a founding member of the Walker Mineralogical Club, Toronto.

Deadline: March 15
Value: $1,500
Recent winner: Matt Izawa

## Petro-Canada Graduate Research Award (5 awards)

Available through the AUCC. Research must be related to oil and gas industry, but students may apply from a variety of disciplines including geological engineering, geology and geophysics. One year duration. Holders may reapply.

Value: $10,000
Deadline: February 1 at AUCC
Recent Winners: Ed Hornibrook

## Society of Exploration Geophysicists Scholarship

Applicant must intend to pursue college course directed toward a career in exploration geophysics; must have an interest in and aptitude for Physics, Mathematics and Geology. Financial need will be taken into consideration but prime consideration is competence of student. Scholarship is renewable after first year subject to scholastic standing, availability of funds and direction of student's studies.

Value: $1,200 average but can be from $500-$3,000 per academic year
Deadline: March 1
Recent Winners: Baishali Roy, Haitao Yang, Jacqueline Hope, Charley Murphy, Erika Szabó

## Society of Economic Geologists

Students of mineral resources throughout the world may apply for thesis research grants available from the Society of Economic Geologists Foundation and the Society of Economic Geologists. Purpose of the research grants is to provide partial support of master's and doctoral thesis research for graduate students. Grants from the High E. McKinstry Fund are awarded to support research with a substantial field component. The Hikock-Radford Fund awards grants for field projects in arctic, sub-arctic, or other challenging field areas. A third group of student research grants is in part funded by gifts from BHP Minerals. These provide funds for research in economic geology that focuses on new descriptive data on ore deposits, mining districts, mainly outside North America, and on topical subjects.

Value: range US$500-US$3,000
Deadline: February 1
Recent winners: Rob L'Heureux, Craig Finnigan, Rob Carpenter, Erika Greiner, Phil Geusebroek

## Society of Economic Geologists - Hugh Exton McKinstry Research Grant

The Hugh Exton McKinstry Fund was established by the late Hugh and Elizabeth McKinstry to enhance in perpetuity the educational goals developed by High McKinstry during his years as a professor of economic geology at Harvard University. Grants-in-aid for field or laboratory studies are open to graduate students, faculty, or geologists on study leave from their employment. Project for which funding is requested must be beneficial to the science of

economic geology, especially as applied to field situations. Applications for funds should describe the nature of the proposed project, the procedures to be used, and the anticipated contributions to the science of economic geology. Applications should not exceed three double spaced pages and must be accompanied by a resume summarizing the education and experience of the applicant, and by at least one letter of support. Applications must be submitted directly to the Chairman of the Special Grants Committee, Society of Economic Geologists Foundation Inc., 5808 S. Rapp St. Suite 209, Littleton, CO, 80120, USA.
Value: Various - $650-3,000 but $1,000 seems the average
Deadline: March 31
Recent Winners: Michael T. Lewchuk, Scott Jobin-Bevans, Miroslav Sidor, Rob L'Heureux

## Society of Economic Geologists - Hikock Radford Grant

Purpose of the research grants is to provide partial support of master's and doctoral thesis research for field projects in arctic, sub-arctic, or other challenging field areas.
Value: various - US$500-3,000
Deadline: February 1 in Colorado. Recent winner: Rob Carpenter

## Society of Exploration Geophysicists - Lucien LaCoste Scholarship

Any graduate student who is working toward a degree in Geophysics, who will be enrolled on a full time basis for the following academic year, and who is specializing in gravity exploration is eligible to apply. Use normal SEG Scholarship application forms and send to the SEG with the title of the scholarship appended.

Deadline: March 15
Value: US $10,000
Recent winner: Claire Perry, Tyler Hayes

## Society of Professional Well Log Analysts Foundation Scholarship

Scholarships provide financial assistance to qualified undergraduate and graduate students pursuing a study program directly related to the science and application of formation evaluation. Grants aid in the support of graduate student research projects and faculty research projects directly related to the science and application of formation evaluation. The relevancy of an applicant's degree program and career objectives to formation evaluation will count highly toward a successful award. Examples of such support include but are not limited to the purchase of well logs, core samples, other forms of field data, purchase of copies of project-related references or reports, purchase of special-purpose materials, supplies, components, or instruments for experimental purposes, purchase of computer time, etc., subject to the approval of the Scholarship and Grant Committee. Use current form. Two references and official transcripts required.

Deadline: mid-March; check for posted information
Value: Various
Recent winners: David Hamilton, Helen Lau, Michael Kreitner

## Society of Graduate Students (U.W.O.) TA Excellence Awards

Eight awards are made annually via nominations from undergraduate students for the best teaching assistants at the university. Awards made from the Society of Graduate Students after

deliberations by the SOGS Academic Committee and the Faculty of Graduate Studies based on the results of evaluations and written comments provided by the nominee's students.

Deadlines: November for Fall Term;
March for Winter Term and Full year courses;
June for Intersession.

Value: $750 each

Current deadlines will be posted for each pertinent occasion. Faculty and lecturers are urged to display deadlines when appropriate and encourage undergraduate student participation. Nomination forms available from SOGS and academic departments.

Recent Winners: Monday Gala, Patrice Huddart, Dipanjan Banerjee, Saugata Datta, Bogdan Varban.

## Faculty of Science Graduate Teaching Assistant Excellence Award

Awards made based on the results of evaluations and written comments provided by the nominee's students.

Value: $600 each

Recent Winner: Xavier Roca Argemi, Michael Hay, Kebbi Hughes, Xavier Roca Argemi, Matt Izawa, Duane Petts, Reynold Sukara, Piotr Angiel, Hadi Ghofrani.