## Student Chapter Annual Report Cover Page

**Submission Deadline:** September 30th  
Submit to: studentprograms@segweb.org

Month/Year Reported: From **09/2018** (mm/yyyy) – To **09/2019** (mm/yyyy)

### STUDENT CHAPTER:

Name: **Memorial University of Newfoundland SEG Student Chapter (MUN-SEG)**

University Affiliation: **Memorial University of Newfoundland**

Mailing Address: Department of Earth Sciences, Room 4063, Alexander Murray Bldg, 9 Arctic Ave, St. John's, NL A1B 3X5

Dedicated E-mail: mun.segchapter@gmail.com

Website: N/A

Logo: Attached

Facebook: [https://www.facebook.com/groups/263599687134964/](https://www.facebook.com/groups/263599687134964/)

Twitter: MUN-SEG

Instagram: mun_seg

LinkedIn: N/A

YouTube: N/A

### Chapter Executive Committee (in office during the time frame captured on this report) (type "Vacant" if position not filled): The new committee is reported on the Student Chapter Membership Information form (SCMIF).

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>E-mail</th>
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<tbody>
<tr>
<td>President</td>
<td>Matthew Manor</td>
<td><a href="mailto:mjmanor@mun.ca">mjmanor@mun.ca</a></td>
</tr>
<tr>
<td>Vice President</td>
<td>Robert King</td>
<td><a href="mailto:rdk248@mun.ca">rdk248@mun.ca</a></td>
</tr>
<tr>
<td>Secretary</td>
<td>Christopher Galley</td>
<td><a href="mailto:cggalley@mun.ca">cggalley@mun.ca</a></td>
</tr>
<tr>
<td>Treasurer</td>
<td>Krista Greeley</td>
<td><a href="mailto:kgreeley@mun.ca">kgreeley@mun.ca</a></td>
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### Chapter Academic Sponsor:

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<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
<th>Fax</th>
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<tbody>
<tr>
<td>Stephen J. Piercey</td>
<td><a href="mailto:spiercey@mun.ca">spiercey@mun.ca</a></td>
<td>1-709-864-2477</td>
<td></td>
</tr>
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### Chapter Industry Sponsor (not affiliated with the student chapter’s institution): [Check if SEG Fellowship in good standing]

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<tbody>
<tr>
<td>Lawrence Winter</td>
<td><a href="mailto:lwinter@altiusminerals.com">lwinter@altiusminerals.com</a></td>
<td>1-709-579-8278</td>
<td>1-709-576-3441</td>
</tr>
</tbody>
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### Sponsoring Institution or Company(name):
STUDENT CHAPTER ANNUAL REPORT FORM

The purpose of this form is to report on Student Chapter activities over the previous year. The report provides a useful medium to document the status and progress of individual chapters. Annual Reports are used to evaluate applications for SEG support and to keep Student Chapter information up-to-date on SEG website. Please provide a summary of Student Chapter activities in a concise form as suggested below. Description of programs may be supported by a limited number of photographs and figures in a format appropriate for publishing on our website.

Submission Deadline: 30th September 2019

Year Reported: September 2018 – September 2019
Student Chapter Name: MUN-SEG Student Chapter
Mailing Address:

Memorial University of Newfoundland’s student chapter of the Society of Economic Geologists (MUN-SEG) aims to promote an understanding of all matters relating to and promoting an interest in economic geology. Our chapter seeks to bridge the gap between students and faculty in a university setting with professional geologists from industry by creating events where all members can freely interact with each other and at the same time educate one another.

EXECUTIVE MEMBERSHIP

Outgoing Student Chapter Executive Committee (2018-2019)

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<td><a href="mailto:kgreeley@mun.ca">kgreeley@mun.ca</a></td>
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Incoming Student Chapter Executive Committee (2019-2020)

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<tr>
<td>President</td>
<td>Carly Mueller</td>
<td><a href="mailto:cmueller@mun.ca">cmueller@mun.ca</a></td>
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<tr>
<td>Vice President</td>
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<tr>
<td>Secretary</td>
<td>Gabriel Sindol</td>
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</tr>
<tr>
<td>Treasurer</td>
<td>Adam Wiest</td>
<td><a href="mailto:acwiest@mun.ca">acwiest@mun.ca</a></td>
</tr>
</tbody>
</table>

STUDENT CHAPTER ACADEMIC SPONSOR
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Vice President of Exploration
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STUDENT MEMBERSHIP

<table>
<thead>
<tr>
<th>Luke Evans</th>
<th>Dorota Pietruszka</th>
<th>Adam Wiest</th>
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<tr>
<td>Chris Galley</td>
<td>Kei Quinn</td>
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<td>Andres Junco Rojas</td>
<td>Dennis Sanchez Mora</td>
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<td>Robert King</td>
<td>Marko Szmihelsky</td>
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<td>Caroline Lich</td>
<td>Sarah Greene</td>
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<tr>
<td>Matthew Manor</td>
<td>Carly Mueller</td>
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<tr>
<td>Laura Mateo</td>
<td>Nikola Denisova</td>
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</tr>
<tr>
<td>Adam Nissen</td>
<td>Gabriel Sindol</td>
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STUDENT CONFERENCE ACTIVITY IN 2018-2019

Student members have been active in bringing their research activities to conferences throughout North America and beyond, showcasing new knowledge being developed at Memorial University of Newfoundland. Our diverse range of student projects leads to discussion of topics in all parts of geological sciences.
Matthew Manor, Ph.D. Candidate

SEG Keystone (September 2018) – "Upper Devonian felsic volcanism at the Kudz Ze Kayah Zn-Pb-Cu VMS deposit, Finlayson Lake district, Yukon: Insights from high-precision CA-ID-TIMS U-Pb zircon geochronology"

Cordilleran Tectonics Workshop (February 2019) – "New U-Pb zircon geochronology and Lu-Hf isotope constraints on the episodic evolution of felsic rocks in the Finlayson Lake district, Yukon"

Dennis Sánchez Mora, Ph.D. Candidate

Underwater Mining Conference (September 2018) – “Permeability and fault control on seafloor massive sulphide deposits in the Lucky Strike hydrothermal field (Mid-Atlantic Ridge) using Leapfrog Geo software”

PDAC (March 2019) – “Formation of seafloor massive sulphide deposits at the Lucky Strike segment, Mid-Atlantic Ridge”

Robert King, M.Sc. Student

PDAC (March 2019) – “Isotopic and Geochemical Signatures of Base Metal Indicator Minerals in the Southern Mackenzie Basin, Northwest Territories, Canada”

GAC-MAC (May 2019) – “Isotopic and Geochemical Signatures of Base Metal Indicator Minerals in the southern Northwest Territories, Canada”

Krista Greeley, M.Sc. Student

International Symposium on Deep Sea Corals (July 2019) – “Growth band microanalysis in deep-water sea pens from the Laurentian Channel AOI”

Chris Galley, Ph.D. Candidate

PDAC (March 2019) – “A Study of Seafloor Massive Sulphide Deposit Systems through Magnetic Inversion; East Manus Basin”

European Geoscience Union Annual Meeting, Vienna (April 2019) – “Applications of Voxel and Surface Geometry Magnetic Inversion in Modelling Seafloor Massive Sulphide Deposit Systems; East Manus Basin”

GEM 2019 Xi’an: International Workshop on Gravity, Electrical, & Magnetic Methods and Their Applications, Xi’an, China (May 2019) – “Modelling the subseafloor structure of seafloor massive sulphide deposits using surface geometry magnetic inversion”

Adam Wiest, M.Sc. Student

GSA, Phoenix (September 2019) – “Late Triassic to Middle Jurassic basin development in the northern Canadian Cordillera: New constraints on the timing of regional exhumation from laser ablation split-stream (LASS) detrital zircon U-Pb geochronology and Hf isotope geochemistry”

Cordilleran Tectonics Workshop (February 2019) – “Jurassic synorogenic sedimentation along the Yukon-Tanana—Slide Mountain terrane boundary: Faro Peak formation, central Yukon”
MEETINGS

Several meetings are held during the year to update chapter members on current/past events and plan future events.

FIELD TRIPS

Bell Island, Newfoundland (November 11, 2018)

Our Chapter organized a field trip led by Project Geologist James Conliffe of the Newfoundland and Labrador Geological Survey, to tour the iron formations on Bell Island, Newfoundland. Mining on Bell Island terminated in 1966, but the exposed oolitic ironstone remain visible along the north coast. The tour began on the southern coast, viewing the shale, siltstones and sandstones that lie stratigraphically below the iron formations. We then worked northwest through the stratigraphic layers up to the Dominion formation, where the mine entrance stands closed, and later to the Scotia and Gull Island formations which host the highest concentration of the ironstone. Eight students attended the fieldtrip, five graduate students and three undergraduates.
Ni-Cu-PGE deposits of the Sudbury Basin and Archean precious and base metal deposits of the Abitibi Greenstone Belt, Ontario and Québec (April 29–May 7, 2019)

This year, our chapter organized a field trip on which six graduate students participated, for an out-of-province field trip to the Abitibi Greenstone Belt and Sudbury Basin. The field trip began in Sudbury, where students were acquainted with the geology of the Sudbury Igneous Complex (SIC). The trip began with a tour led by geologist David Smith of Wallbridge Mining, who gave us an overview of their projects and a broader introduction to the economic geology of the basin. Attendees were given an opportunity to review several impressive sections of Ni-Cu-PGE-rich drill core from Wallbridge Mining’s exploration projects (Fig. 1A) and spent a day at the Parkin Offset property (Fig. 1B).

Figure 1: Students were able to see core from several of Wallbridge Mining’s projects including polished core from the Broken Hammer project (A). B) Students at the Parkin Offset trench with exposed massive sulfide and host rock (quartz diorite and inclusion-rich diorite).
The following day students made multiple stops along a transect across the Sudbury Basin, which was led by Shirley Peloquin and Clayton Kennedy from the Ontario Geological Survey. Along this transect students saw evidence for bolide impact (shatter cones and Sudbury Breccia; Fig. 2A and 2B), metasedimentary formations, and key outcrops of the SIC (Fig. 2C).

Next, the group made their way north to Timmins where their next few days were spent in the Porcupine District with Newmont Goldcorp. The first day started at Hoyle Pond Mine, where students sat in on the engineering and production geology meetings to gain exposure to the entire mine operations. After morning meetings, students suited up and headed nearly 1,600 meters underground (Fig. 3A) to be taken around to an operating underground diamond drill and to active drifts to see the geology at various levels throughout the mine (Fig. 3C). After returning to surface and eating lunch students and representatives from Newmont Goldcorp discussed large-scale sustainability and innovation objectives to understand how innovative technologies are implemented into daily operations at the mine, such as the utilization of drones underground following blasts. The following day, students toured the Hollinger open pit mine, where technology also plays a significant role in monitoring the daily mine activity, as the closest residential areas are located only 200 meters away from the edge of the pit (Fig. 3B and 3C).

The group’s time in Timmins also included a visit with Moneta Porcupine where a MUN alumnus, Jackie Long, along with senior geologist Kevin Montgomery, gave them an overview of their exploration core from the Golden Highway project. Kevin presented an overview of the local geology, explained the

Figure 2: A) Shatter cones, evidence of a meteorite impact; B) the start of the day with brisk weather looking at an example of quartz diorite (QD); and C) the end of the day with snow covering the last outcrop of Sudbury breccia.
stratigraphy, and highlighted important structural and geochemical controls on the gold mineralization (Fig. 4).

In the afternoon after visiting Moneta Porcupine, students stopped at the Timmins Museum to see gold samples from the Timmins camp (Fig. 5A) and hiked through knee-deep snow to hopefully find some outcrop around the Matheson area (Fig. 5B). A free day was scheduled for the second last day in the Abitibi, which allowed students to explore the Rouyn-Noranda area. During the free time, students visited the watch point over the Malartic Open Pit (Fig. 5C) where a part of downtown has been moved to accommodate the mine. After visiting Malartic, students headed out in search of komatiite outcrops (Fig. 5D).

The last day before heading back to Sudbury was spent with Agnico Eagle at their gold-rich volcanogenic massive sulfide La Ronde-Penna mine. Geologist Roxanne Jacobs gave a presentation on the challenges of working underground at extreme depths (3.1 kilometers) and an overview of the local geology (Fig. 6A). The presentation was followed with by an overview of the drill core from the La Ronde deposit (Fig. 6B).
Figure 5: A) A gold nugget at the Timmins Museum which was recovered in the Timmins Camp; B) students making their way through snow; C) students discuss the geology of Canadian Malartic deposit type and local geology at the overlook. This high tonnage and low-grade gold deposit is proposed to be an Archean intrusion-related style deposit; and D) student very excited to look at the spinifex textures of the komatiites at Spinifex Ridge.

Figure 6: A) Exploration geologist Roxanne Jacobs from Agnico Eagle introduces the 3D model of their LaRonde-Penna underground mine and B) student examining drill core from the LaRonde-Penna volcanogenic massive sulfide deposit.
LECTURES AND WEBINARS

The MUN-SEG Student Chapter organizes talks and webinars throughout the year that are related to economic geology in various fields of study. We attempt to provide a number of different topics for students to learn about as a means for them to get the most out of their experience as a student member.

Alan Wilson (TGDG Webinar), October 9, 2018 – “Porphyry copper deposits: field criteria for exploration and resource potential evaluation”

Melissa Anderson and Dan Gregory (TGDG Webinar), October 23, 2018 – University of Toronto Night

Pedro Acosta-Góngora (GSC-Ottawa), November 1, 2018; “Geochemical characterization of the Central Mineral Belt U±Cu±Mo±REE mineralization, Labrador, Canada: evidence from principal component analysis”

John McGaughey (Geosoft-KEGS Webinar), January 15, 2019 – “Geophysical Detection of the Hydrothermal Alteration Footprints of Ore Deposits”

Andrew Smith (Ph.D. Candidate, Cardiff University), February 28, 2019 – “Volatile to VMS: the tale of Te and Se”

Alex Peace (Postdoctoral Fellow, MUN), May 29, 2019 – “GPlates deformable plate tectonic models of the southern North Atlantic: Insights into rift-related deformation and magmatism”

Sarah Gleeson (GFZ Potsdam, SEG Thayer Linsley Lecturer), September 6 & 9, 2019 – “Diagenesis, Sulfur, and Giant Zn Deposits” & “Pyrite as Ore and Gangue in Hydrothermal Systems: Potential and Pitfalls”

Rich Goldfarb (Colorado School of Mines, SEG Honorary Lecturer 2019), September 24, 2019 – “Gold Deposits in Metamorphic Rocks: What We Know and Why are We Getting More Confused” & “China—the world’s largest gold producer: A consequence of a unique geological evolution”

WORKSHOPS

Workshops and short courses are organized throughout the year to provide MUN-SEG student members the opportunity to learn practical skills related to geological research and industry methodology. This year, we organized one large workshop:

Orogenic Gold Workshop (September 25-26, 2019) – This two-day workshop was organized by MUN-SEG and co-sponsored by Anaconda Mining, Ltd. The course aimed to increase exposure to orogenic gold deposits with lectures and practical exercises led by Rich Goldfarb (Colorado School of Mines), Steve Piercey (MUN), and Hamish Sandeman (Newfoundland Geological Survey). The first day focused on general geological characteristics, formation styles, exploration methods, and economics of orogenic gold deposits. The second day included discussions of various gold occurrences throughout geologic time and include an afternoon session on gold deposits in Newfoundland and Labrador. A total of 50 participants were present including students from Memorial University, local industry, and NL Geological Survey geologists.
FUNDRAISING

The 2018-2019 student chapter was very active in securing funding to complete social activities, field trips, and workshops. The total amount of fundraising over the course of the year amounted to over $13,000 CAD and was significant in our efforts to coordinate and carry out events for students and other geologists in Newfoundland. This total included the following key funding sources:

**Bake Sales** (randomly throughout 2018-2019 academic year, n=5) – Students provided baked goods for sale in the main lobby of the MUN Earth Sciences department. Proceeds went directly to SEG Student Chapter activities.

**Geologist Starter Pack Raffle** (Spring 2019) – Entry-level geological field equipment was raffled off in support of the chapter. Additional items to the base raffle were generously donated by Deakin Industries and Quidi Vidi Brewing.

**Geoscience Education Trust of Newfoundland and Labrador** (May 2019) – A successful grant of $750 CAD was written in support of our efforts to bring Dr. Richard Goldfarb to MUN for public lectures on orogenic Au deposits in late September 2019. The success of this grant led to the initiation of the aforementioned Orogenic Gold Workshop.

**Geological Association of Canada Mineral Deposits Division (GAC-MDD) Grant** – A field trip proposal was written for the above Abitibi Greenstone Belt and Sudbury Basin field trip, where our chapter was awarded $1,500 CAD. A simplified field trip report was submitted in July 2019.
SEG Wallace Grant – A field trip proposal was written for the above Abitibi Greenstone Belt and Sudbury Basin field trip, where our chapter was awarded $1,400 USD. A complete field trip report was submitted in July 2019.

Co-sponsorship funding from Anaconda Mining, Ltd. – The company supported our Orogenic Gold Workshop by contributing $2,500 CAD to aid in initial purchases and bookings for the workshop.

Orogenic Gold Workshop – In addition to the co-sponsorship to Anaconda Mining, our chapter raised over $5000 from industry and government participants that attended the Orogenic Gold Workshop on September 25-26, 2019.

Canadian Institute of Mining (CIM), Newfoundland Division funding – CIM donated $1,001.55 CAD for our Industry-Student Meet & Greet in April 2019.

OTHER EVENTS

Beers’n’Peers (Alternating weeks on Thursdays during Fall 2017 and Winter 2018 semesters) – students and faculty convene at the on-campus pub where an individual presents a paper related to economic geology to discuss with their colleagues.

CIM 2018 – Volunteering at the Matty Michel Prospectors Booth (October 31 – November 3, 2018) – The Matty Michel Room is a resource used to support local prospectors, the MUN SEG chapter supports them annually at CIM as prospectors are a key aspect of the geologic community.

Industry-Student Meet & Greet (November 23, 2018 & April 5, 2019) – two successful events were held where students and local industry members met to socialize at a local pub. MUN-SEG student members were able to develop ties to the local exploration and mining community.

FUTURE PLANS

- Organize local geologic field trips with a focus on economic geology.
- Continue to plan social activities such as Beers’n’peers.
- Continue to host guest speakers.
- Continue to organize workshops and short courses of significance to economic geologists (e.g. Leapfrog-Geo Webinar, ore petrography, ioGAS, geophysical exploration methods, how to core-log).
- Organize events that increases exposure to mineral deposits not seen within Newfoundland (e.g., core review of different deposits types around the world).
- Increase the number of fundraising initiatives to run field trips, short courses, and lectures.
- Organize an international economic geology field trip in 2020.
- Aim to increase the amount of industry-chapter interactions through educational and social events.
- Aim to increase the amount of involvement and interaction between undergraduate, graduate, and post-doctorate students.
- Increase collaborations with Canadian and international student chapters for future field trips, short courses.