

# WEBSITE PRICELIST 2019

PROFESSOR SUE GOLDING

DIRECTOR – CENTRE FOR GEOANALYTICAL MASS SPECTROMETRY

## ANALYTICAL FACILITIES

The analytical laboratories at the School of Earth and Environmental Science are among the most advanced facilities of their kind in the world. Our expertise and equipment supports research within our School and the wider UQ community. Government, Discovery and Industry partners and clients can also make use of our services.



The complete SEES Analytical Services are comprised of the following laboratories and specialities. The relevant contacts are listed in each section and can provide detailed information and specialised quotations on the services offered.

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**(All prices are in Australian dollars and exclusive of GST @ 10% for Australian transactions)**

# SAMPLE PREPARATION

**SAMPLE PREPARATION IS REQUIRED PRIOR TO MANY OF THE INSTRUMENTAL ANALYTICAL TECHNIQUES LISTED IN THE LATER SECTIONS.**

**PREPARATION SERVICES ARE AVAILABLE AT THE ADDITIONAL COSTS AS SHOWN HERE.**

## A. SAMPLE PRE-PREPARATION (per SAMPLE / PIECE)

	External rate	Technician-assisted UQ rate
Oven dry and crushing (per sample)	30	20
Sieving and granulometric analysis	30	30
Split core Logging (XRF screen, Magnetic Susceptibility plus Multi-wavelength Scan) in ~5mm steps (per section)	20	10
Mineral separation (minimum charge per sample)	300	200

## B. LAPIDARY SERVICES (per item/section)

	External rate	Technician-assisted UQ rate
Polished blocks and mounts	30	15
Impregnation (charges are in addition to subsequent preparation costs)	20	10
Standard thin section (50 x 25 mm)	40	20
Polished thin section (50 x 25mm)	60	30
Doubly polished thin sections (for fluid inclusion work, etc.)	70	35

Polished blocks and mounts includes preparation of samples for laser ablation (see RIF section below).

## C. LAB ACCESS FEE – INDUCTION AND USE OF PREPARATION LABORATORY AT DISCOUNTED (STUDENT) RATE FOR OWN SAMPLES

Client	Annual rate Per person
External clients (Calendar year) (incl Induction, Training and Consumables as required.) (Student Per Sample rate applies to work performed.)	500

Where all external work is carried out by SEES Technical staff (at the associated External rate), the lab access fee is not applicable.

For non-conventional samples requiring non-routine processing, method development or additional advice on preparation, additional charges of up to \$100 per hour will apply.

For a quote on lapidary services not listed above, please contact Dr Gang Xia ([g.xia@uq.edu.au](mailto:g.xia@uq.edu.au)), SPL Laboratory Officer.

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## STABLE ISOTOPE GEOCHEMISTRY LAB (SIGL)

### A. CARBON $\delta^{13}\text{C}$ and NITROGEN $\delta^{15}\text{N}$ (per sample rates)

Sample	External rate	Technician-assisted UQ rate
Dissolved inorganic carbon (DIC)	45	30
CO <sub>2</sub> (mixed gases)	110	60
CH <sub>4</sub> (mixed gases)	110	60
Carbonates (online – near pure carbonate minerals)	60 <sup>1</sup>	35 <sup>1</sup>
Carbonates (offline - impure mixes and complex samples)	100 <sup>1</sup>	60 <sup>1</sup>
Organic carbon and nitrogen	30	20
Hydrocarbons	110	60

### B. OXYGEN $\delta^{18}\text{O}$ (per samplerates)

Sample	External rate	Technician-assisted UQ rate
Carbonates (online)	60 <sup>1</sup>	35 <sup>1</sup>
Carbonates (offline)	100 <sup>1</sup>	60 <sup>1</sup>
Waters	45	30
Body fluids	60	35
Organic oxygen	60	45
Sulfates	200	120

### C. HYDROGEN $\delta^2\text{H}$ (per sample rates)

Sample	External rate	Technician-assisted UQ rate
Waters	45	30
Body fluids	60	45
CH <sub>4</sub> (mixed gases)	150	100
Organic hydrogen (keratin)	60	45
Silicates	200	120

### E. SULFUR $\delta^{34}\text{S}$ and $\delta^{33}\text{S}$ (per samplerates)

Sample	External rate	Technician-assisted UQ rate
Sulfides ( $\delta^{34}\text{S}$ )	100	60
Sulfates ( $\delta^{34}\text{S}$ )	150	100
Organics ( $\delta^{34}\text{S}$ )	60	45
Sulfides ( $\delta^{34}\text{S}$ and $\delta^{33}\text{S}$ )	200	120
Sulfates ( $\delta^{34}\text{S}$ and $\delta^{33}\text{S}$ )	250	130

### F. GC-c-IRMS

Sample	External rate	Technician-assisted UQ rate
Machine daily rate	1,500	1,000

1. Price includes both  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  if required.
2. **A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or analysis may be delayed in order to make up a batch. A Batch Fee of \$200 applies for batches of less than 10 samples.**

For a quote on analytical charges for other types of materials not listed above, please contact Kim Baublys ([k.baublys@uq.edu.au](mailto:k.baublys@uq.edu.au)), SIGL Operational Manager.

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## ENVIRONMENTAL GEOCHEMISTRY LAB (EGL)

### A. LAB ACCESS FEE FOR USE OF FACILITIES

	Annual rate – per person
UQ and Collaborative Projects	500
External Projects	1000

Where all work below is carried out by SEES Laboratory staff (at the associated rate), the lab access fee is not applicable.

### B. ICP-OES INSTRUMENT (MAJOR ELEMENTS AS LISTED)

Sample	External rate	Technician-assisted UQ rate
Major oxides in minerals and rocks (lithium metaborate digestion, incl. LOI)	60	40
Minor and Trace Elements (Default Suite 1 next page) - where samples require digestion or processing.	120	80
Minor and Trace Elements (Default Suite 1 next page) - where samples DO NOT require digestion or processing.	40	25

*Where clients work in lab with minimal supervision* (daily rates)

Sample	External rate	Student/staff-driven UQ rate
Daily instrument rate including Induction and Training	1,000	700

### C. QUADRUPOLE ICP-MS DETERMINATIONS BY MATRIX (per sample rates)

Sample	External rate	Technician-assisted UQ rate
Silicates (includes bomb or microwave dissolution)	180	140
Silicates (includes open beaker dissolution)	140	100
Water (brines, leachates)	70	40

- **A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or analysis may be delayed in order to make up a batch. A Batch Fee of \$200 applies for batches of less than 10 samples.**
- For non-conventional samples requiring non-routine analysis, method development or additional advice on analytical setup and data processing, an additional charge of \$100 per hour will apply.
- All the charges listed apply to samples that are ready for acid digestion. Additional charges will apply for samples that require processing prior to digestion (e.g. crushing, splitting, drying, homogenisation etc.).

For a quote on analytical charges for other types of materials not listed above, please contact Marietjie Mostert ([m.mostert@uq.edu.au](mailto:m.mostert@uq.edu.au)), EGL Operational Manager.

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**Major oxides in minerals and rocks**

Al<sub>2</sub>O<sub>3</sub>, CaO, Fe<sub>2</sub>O<sub>3</sub>, K<sub>2</sub>O, MgO, MnO, Na<sub>2</sub>O, P<sub>2</sub>O<sub>5</sub>, SiO<sub>2</sub>, TiO<sub>2</sub>, H<sub>2</sub>O, LOI (Loss on Ignition).

**ICP-OES MINOR AND TRACE ELEMENTS – STANDARD SUITES (TYPICAL LOR'S)**

Detection limits are illustrative only and are determined for each individual experiment. They may differ from experiment to experiment.

Elements offered in each Suite		TYPICAL LOR
Default	Al, Ba, Fe, Mn, Cd, Co, Cr, Cu, Ni, Pb, Zn	~10 ppb
	Ca, Mg, K, Na	~10 ppb
	Si, Ti, Zr	~10 ppb
2	Ag, As, Sb, Se, Tl, V	~50 ppb
3	Sc, Y, Rare Earth Elements, U, Th	~ 100 ppb
4	P, S	~ 100 ppb

Suite 1 is the default for all samples. Additional charges may apply for adding extra suites.

Expansions and custom combinations will incur extra cost and will be priced accordingly.

**ICP-MS TRACE ELEMENTS (TYPICAL LOR'S)**

Detection limits are illustrative only and are determined for each individual experiment. They may differ from experiment to experiment.

ELEMENTS AVAILABLE BY REQUEST	TYPICAL LOR
Cd, Co, Cr, Cu, Ni, Zn	~0.05 – 0.5 ppb
Ag, As, Sb, Se, V, Sn, Tl, Pb	~0.05 ppb
S Sc, Y, Rare Earth Elements, U, Th	~0.005 – 0.02 ppb
Li, B, Be, Ga, Ge, Rb, Sr, Zr, Nb, Mo, Cs, Ba	~0.02 ppb
Hf, Ta	~ 0.005 ppb

Custom combinations may incur extra cost and will be priced accordingly.

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# ISOTOPIC TRACING AND GEOCHRONOLOGY (RIF)

## A. LAB ACCESS FEE FOR USE OF LABORATORY FACILITIES FOR SAMPLE PREPARATION

Client	Annual rate Per person
UQ and collaborative projects	500
External projects	1,000

Where all work is carried out by technical staff (at the associated rate), the lab access fee is not applicable.

## B. MC-ICP-MS (per sample rates)

Sample	External rate	Technician-assisted UQ rate
Silicates Nd isotopes	400	250
Silicates Nd isotopes and Sm-Nd concentrations	500	350
Silicates Sr isotopes	300	200
Silicates Sr isotopes and Rb-Sr concentrations	400	250
Silicates Sr and Nd isotopes	500	350
Silicates Sr and Nd isotopes and Rb-Sr, Sm-Nd concentrations	650	450
Silicates Sr, Nd, Pb isotopes	650	450
Silicates Sr, Nd, Pb isotopes and trace elements	750	550
Silicates Sr, Nd, Pb and Hf isotopes	750	550
Silicates Pb isotopes	400	250
Carbonate Sr isotopes	200	150
Water Sr isotopes	250	200
Carbonate U-Th dating	400	250
Volcanics U-Th isotope analysis	500	350

## C. Quadrupole ICP-MS (per sample rates)

Sample	External rate	Technician-assisted UQ rate
Silicates (bomb or microwave dissolution)	180	140
Silicates (open beaker dissolution)	140	100
Carbonates (trace elements)	70	40
Low salinity waters (trace elements)	70	40
Carbonates (elements to Ca ratios)	50	30

- A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or waiting time may be longer to make a batch.
- For the above isotopic analyses, if bomb digestion is required over standard open-beaker digestions, an extra \$30 per sample will be charged.
- Prices are based on normal samples ready for analysis in RIF Lab. Difficult samples will incur surcharge depending on the nature of the samples. Samples that need substantial pre-preparation outside the RIF lab will incur extra labor/consumable costs.

(All prices are in Australian dollars and exclusive of GST @ 10% for Australian transactions)

**D. LASER ABLATION – ICP-MS (LA-Q-ICPMS)**

The laboratory uses an ASI Laser with Thermofisher iCAP-Q or X-series Quadrupole ICPMS. Standard LA-Q-ICPMS services include analysis of appropriate reference materials before and after each batch of samples. Daily external and technician-assisted UQ rates include full Data Processing and Quality Assurance as appropriate.

See **SAMPLE PREPARATION** section for information on preparing samples for LA-ICPMS.

Sample	External rate	Technician-assisted UQ rate
Daily instrument rate	By Negotiation	1400

**E. LASER ABLATION – MULTICOLLECTOR - ICP-MS (LA-MC-ICPMS)**

The combination of ASI Laser with Nu Instruments Multicollector ICPMS is the most sensitive and complex technique currently available, offering unprecedented capabilities in selective analysis for geochronology.

**All prices for LA-MC-ICPMS are on application only. Please contact us for information.**

Sample	External rate	Technician-assisted UQ rate
Daily instrument rate	By Negotiation	1600

For a quote on analytical charges for other types of materials not listed above, or different types of combinations, please contact Prof Jian-xin Zhao ([j.zhao@uq.edu.au](mailto:j.zhao@uq.edu.au)), RIF Academic Manager.



# STANDARD TERMS AND CONDITIONS, NOTES AND COMMENTS

## PRICE LIST – VALID JANUARY 2019

- All prices are in Australian dollars and exclusive of GST @ 10% for applicable Australian transactions.
- Where all external work is carried out by SEES staff (at the associated External rate), lab access fees are typically not applicable.
- Analytical charges listed generally apply to samples that are ready for acid digestion or fusion. Additional charges will apply for samples that require pre-processing prior to digestion (e.g. crushing, splitting, drying, homogenisation etc.).
- For non-conventional samples requiring non-routine processing, method development or additional advice on preparation, additional charges of \$100 per hour will apply.
- Payment must be made or a payment process be in place (RISQ or PO signed and authorised) prior to release of results.

### For SIGL:

- <sup>1</sup>Price includes both  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  if required.
- **A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or analysis may be delayed in order to make up a batch. A Batch Fee of \$200 applies for batches of less than 10 samples.**
- For a quote on analytical charges for other types of materials not listed above, please contact Kim Baublys ([k.baublys@uq.edu.au](mailto:k.baublys@uq.edu.au)), SIGL Operational Manager.

### For EGL:

- **A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or analysis may be delayed in order to make up a batch. A Batch Fee of \$200 applies for batches of less than 10 samples.**
- For non-conventional samples requiring non-routine analysis, method development or additional advice on analytical setup and data processing, an additional charge of \$100 per hour will apply.
- For a quote on analytical charges for other types of materials not listed above, please contact Marietjie Mostert ([m.mostert@uq.edu.au](mailto:m.mostert@uq.edu.au)), EGL Operational Manager.

### FOR RIF:

- **A minimum batch of 20 samples should be submitted. If less than 20, extra charges may apply or waiting time may be longer to make a batch.**
- Prices are based on normal samples ready for analysis in RIF Lab. Difficult samples will incur surcharge depending on the nature of the samples. Samples that need substantial pre-preparation outside the RIF lab will incur extra labor/consumable costs.
- For a quote on analytical charges for other types of materials not listed above, or different types of combinations, please contact Prof Jian-xin Zhao ([j.zhao@uq.edu.au](mailto:j.zhao@uq.edu.au)), RIF Academic Manager.

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