FACULTY OF SCIENCE

SCHOOL OF BIOLOGICAL, EARTH AND ENVIRONMENTAL SCIENCES

**#GEOS3721Central2020**

# Australian Soil Use and Management

Trimester 3, 2020

# #GEOS3721Central2020
# Highlights and Student Course Evaluation Comments (2007 - 2015)

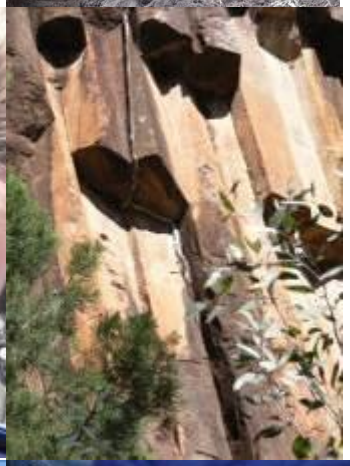
*"The field trip was very useful for hands on learning experience as were the lab classes"*

*"The overall structure of the course allowed us to work through the knowledge and information in a systematic way."*

*"Weekly Festivals really help reinforce lecture and laboratory content."*

*"Lecturer has a very personable teaching style making lectures and laboratory classes interesting and well explained."*

*The Interactivity in the course was amazing as we were able to undertake individual and self-guided learning. this course was amazing*



*"The practical classes and the field trip were very useful and related well to lecture material."*

*"The overall teaching of this subject was very good. The lecturer was very approachable."*

*"The use of the field trip and laboratories to complement lectures."*

*"Course bordered on edutainment at times"*

*"The practical application of the information made learning easier and more interesting."*

*"Love teaching style, very chill and borders on Edutainment!"*

# #GEOS3721Central2020
# Course Contents @ a glance



| CLASS | DAY | TIME | VENUE |
|---|---|---|---|
| **LECTURE** | Friday | 10-11 AM | On-line |
| **LECTURE** | Friday | 1 - 2 PM | On-line |
| **LECTURE** | Friday | 3 - 4 PM | On-line |
| **LABORATORY** | Friday | 10 AM - 4 PM | On-line |
| **FIELD TRIP** | **O-Week** | **No FIELD TRIP** | Hunter Valley/Gunnedah/Edgeroi/ Narrabri/Wee Waa |
| **LITERATURE REVIEW** | **TBA** | **TBA** | **TBA** |



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# #GEOS3721Central2020
# Course Outline

## 1. Information about the Course

NB: Some of this information is available on the UNSW Virtual Handbook[1]

| | |
|---|---|
| **Year of Delivery** | **2020** |
| **Course Code** | **#GEOS3721Central2020** |
| **Course Name** | **Australian Soil Use and Management** |
| **Academic Unit** | **School of Biological Earth and Environmental Sciences** |
| **Level of Course** | **3** |
| **Units of Credit** | **6UOC** |
| **Session(s) Offered** | **Trimester 3** |
| **Assumed Knowledge, Prerequisites or Co-requisites** | **Either GEOS1211 or GEOS2721/GEOS2101 or GEOS1701** |
| **Hours per Week** | **6** |
| **Field Trip** | **There will be no 4-day Field Trip during O-Week and before session starts (7-11 September, 2019)** |
| **Number of Weeks** | **10 Weeks** |
| **Commencement Date** | **Friday 18 September** |

**Summary of Course Structure (for details see 'Course Schedule')**

| Component | HPW | Day | Time | Location |
|---|---|---|---|---|
| *e.g. Lectures* | **2-3** | | | |
| *Lecture 1* | | Friday | 10-11 AM | On-line |
| *Lecture 2* | | Friday | 1 - 2 PM | **On-line** |
| *Lecture 3* | | Friday | 3 - 4 PM | **On-line** |
| *Laboratory* | **2-3** | Friday | 1 - 4 PM | **On-line** |
| *Festival of Knowledge* | ***2 hours*** | | | **TBA** |
| *Field Trip* | *28 hours* | **12-15 September 2019** | **NO FIELD-TRIP IN 2020** | Gunnedah Edgeroi Narrabri Wee Waa |
| *Online* | | | | |
| **TOTAL** | **5** | | | |
| **Special Details** | • There is limited disabled access at **Narrabri and surrounds** | | | |

## 2. Staff Involved in the Course

| Staff | Role | Name | Contact Details | Consultation Times |
|---|---|---|---|---|
| **Course Convenor GEOS3721** | | *Dr John Triantafilis* | Rm 124B<br>j.triantafilis@unsw.edu.au<br>9385 8087 | *TBA* |
| **Additional Teaching Staff** | Technical & Laboratory Staff | Ms Bernadette Phu | Rm G23A<br>Bernadette.phu@unsw.edu.au | *TBA* |
| | | | | |
| | | | | |

[1] UNSW Virtual Handbook: http://www.handbook.unsw.edu.au/2008/index.html

## 3. #GEOS3721Central2020 Course Details

| | |
|---|---|
| **Course Description**[2] (Handbook Entry) | The soil continuum is the outermost layer of the earth, extending from the surface through various horizons to parent material of consolidated substrate or unconsolidated material. It acts as the interface between the atmosphere, biosphere, lithosphere and hydrosphere and although we rely on it to provide most of our food and fibre and build our houses upon it we give it little thought? This course aims to introduce and consolidate student's knowledge in the discipline area of the science and management of soil in the Australian context. Classes will be reinforced by a field trip to northern and northwest New South Wales. |
| **Course Aims**[3] | In the first part of the course we focus on Pedology (from Russian: *pedologiya*, from the Greek *pedon* = soil, earth). We will study soil formation and the branch of soil science dealing with soil genesis (i.e. factors and processes), morphology, classification and distribution. Students will gain hands on experience in describing various soil profiles using qualitative morphological properties (e.g. colour, texture, structure, reaction, consistency and drainage). This will help in understanding the various soil forming factors and processes that have led to the development of various soil types in the Australian landscape and be invaluable diagnostic tools which students can use in practice to ascertain limitations and determine appropriate management strategies.<br>In the second part we will study soil physics, chemistry and mineralogy. Here our focus will be on the complex mixture of rock fragments and minerals, soil structure and the movement of water and air through soil pores. Theoretical lectures and practical classes in the area of soil physics will focus on soil as a three phase system, a reservoir of water, infiltration and saturated hydraulic conductivity. Complimentary lectures and classes in the area of soil chemistry will be in the area of cation exchange capacity, nutrient cycling, acidification and soil salinisation. In all areas practical aspects of managing soil degradation will be explored in the Australian context.<br>In the last part of the course students will be introduced to new methods of remotely sensed data and GIS application for improved soil use and management. Specifically, students will study applications in electromagnetic induction, resistivity instrumentation and gamma ray spectrometry. Finally, numerical classification and modeling of these data sets are discussed and used to develop soil management classes and maps of soil attribute features and land suitability assessment, respectively. |
| **Student Learning Outcomes**[4] | Fundamental principles → Data collection → Data interpretation → Environmental management<br>*Acquisition of knowledge* → *Application to theory* → *Application to practice* → *Communication to others*<br>Laboratory and fieldwork will provide practical skills in a range of geological, geomorphological and soil laboratory methods. The course also emphasises the development of:<br>• Report and essay writing<br>• Project planning and management, including data collection and interpretation<br>• Group working, co-ordination and delegation<br>The various assignments will test the knowledge and understanding of geomorphology, sedimentology and pedology in the surficial environment, with a focus on landforms and the processes that shape them. Practical skills in conducting field surveys, laboratory tests and data analysis will also be developed and tested in the course, as well as writing skills at communicating the results. The course will emulate the type of professional activities that students might be expected to undertake on graduation. |


**The Sydney Morning Herald**, 19 March 2001

[2] UNSW Virtual Handbook: http://www.handbook.unsw.edu.au/2008/index.html
[3] Learning and Teaching Unit: http://www.ltu.unsw.edu.au
[4] Learning and Teaching Unit – Learning Outcomes: http://www.ltu.unsw.edu.au/content/course_prog_support/outcomes.cfm?ss=0

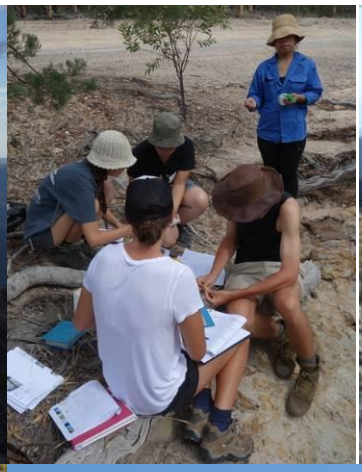
## 3. #GEOS3721Central2020 Course Details (cont.)

| Graduate Attributes Developed in this Course[5] | | |
|---|---|---|
| **Science Graduate Attributes**[5] (maybe replaced by UNSW, School or professional attributes) | **Select the level of FOCUS**<br>*0 = NO FOCUS*<br>*1 = MINIMAL*<br>*2 = MINOR*<br>*3 = MAJOR* | **Activities / Assessment** |
| **Research, inquiry and analytical thinking abilities** | 3 | Literature reviews and critique of published Australian and International journal articles<br>Design, conduct and interpretation of results of field and laboratory work |
| **Capability and motivation for intellectual development** | | |
| **Ethical, social and professional understanding** | 3 | Role of geomorphology, geology and pedology in describing and understanding natural resources and application of knowledge to environmental sustainability and natural resource management |
| **Communication** | 3 | Essay, weekly quizzes and reports on laboratory work and field trip |
| **Teamwork, collaborative and management skills** | 2 | Laboratory work and field trip compiling pedological and geophysical survey data |
| **Information literacy** | 2 | Use of information resources for essay and seminar presentation |

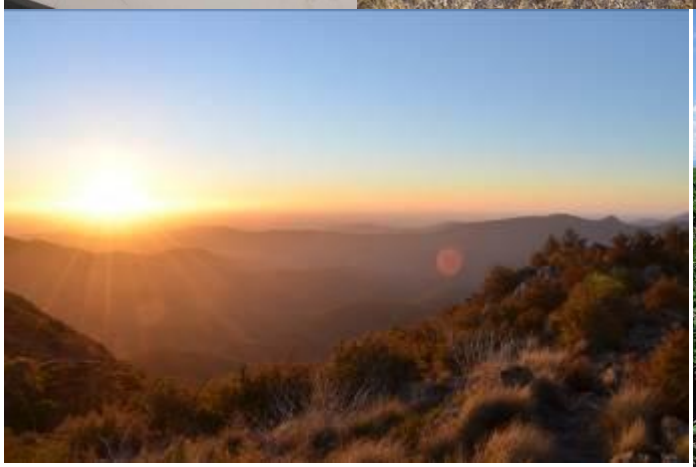
| Syllabus Outline | |
|---|---|
| **Major Topics** | The course covers the major syllabus topics of Pedology (Soil forming factors and processes), soil physics (soil/water/air interactions), soil chemistry (acidity/alkalinity and salinity) as well as introductory aspects to the emerging areas of digital soil mapping and proximal soil sensing (electromagnetic induction and gamma-ray spectrometry). |
| **Relationship to Other Courses within the Program** | The course is an option within the earth science programs and plans, with particular relevance to students undertaking environmental science or resource geology. The course is supported by level 1, 2 and 3 courses in GEOS<br>The course is complementary with by the following first year courses:<br>GEOS1211 Environmental Earth Science<br>GEOS1701 Environmental Systems and Processes<br>The course is complementary with by the following second year courses:<br>GEOS2291 Ground and Surface Water<br>GEOS2721 Australian Surface Environments and Landforms<br>GEOS2181 Earth Materials<br>GEOS2711 Australian Climate and Vegetation<br>The course is complementary with by the following third year courses:<br>GEOS3281 Environment and Contaminant Geochemistry<br>GEOS3711 Biogeography and Human Impact in Australia<br>GEOS3761 Environmental Change<br>GEOS3911 Environmental Impact Assessment |

[5] Access the contextualised Science Graduate Attributes and your mapped courses:
http://www2.science.unsw.edu.au/guide/slatig/sciga.html
(Mapped courses are available at this site)

# #GEOS3721Central2020
# Field Trip Photos (from 2006-2020)






## 4. Rationale and Strategies Underpinning #GEOS3721Central2020

| | | |
|---|---|---|
| **Teaching Strategies** | The structure of the course is built around the lectures and weekly laboratory classes as well as associated readings included in the laboratory manual.<br>The concepts introduced and discussed in the lectures are reinforced through the self-guided and self-paced wet and computer laboratories and the field tutorial.<br><br>There will be a compulsory field trip to northern and northwest New South Wales. The trip will be run during the mid-session break (TBA). Students will incur costs of approximately $200.00. Further cost details will be announced. It is a BEES School Policy that field trip payment is received in advance. Payment is due by TBA. Preferred payment is online. Refund cut-off date is TBA and will only be considered in the event of a serious documented misadventure. The theme of the field trip will be to investigate the soil forming factors and soil forming processes of various soil types and the soil use and management issues related to various soil types in northern New South Wales. On the field trip, students will partake in a variety of data collection tasks and describing soil profiles *in situ*. | |
| **Rationale for learning and teaching in this course[6],** | **Guidelines on teaching:** | ***Application to course:*** |
| | 1. A climate of enquiry should be developed where students feel challenged | *1. Emphasis of the complexity of geochemical systems – what is known and what is not known* |
| | 2. Activities should be interesting and challenging | *2. Field and laboratory work involves students in planning and experiences* |
| | 3. Material must be perceived as relevant to future study or professional practice | *3. Laboratory and field exercises are based on typical projects that young professionals would undertake.* |
| | 4. There must be dialogue/interaction between lecturers and students | *4. Some of the teaching (especially laboratories) will follow a classical Greek dialectic approach* |
| | 5. There should be multiple teaching methods | *5. Lectures, laboratories, fieldwork and readings* |
| | 6. Goals, outcomes and requirements of the course must be clearly articulated | *6. The relevance of each topic and the purpose and outcomes of the laboratory work will be discussed* |
| | 7. Students are to be encouraged to take responsibility for own learning | *7. Field trips require students to undertake largely undirected note taking; students to interpret nature of data collected during laboratory classes and field trip* |
| | 8. Broad graduate attributes must be developed | *8. See above* |
| | 9. Co-operative work with peers assists learning | 9. *Much of the work is group-based,* though reporting is individual |
| | 10. There must be informative and timely feedback to students on progress | 10. *Weekly quizzes will be used to assess student learning and build learning outcome* |

[6] LTU – Teaching Philosophy: http://www.ltu.unsw.edu.au/content/teaching_support/teaching_portfolio.cfm?ss=0#putting

## 5. #GEOS3721Central2020 Schedule

*Some of this information is available on the Virtual Handbook[7] and the UNSW Timetable[8].*

| Wk | Date | *Rm* | **Friday 9-10 AM**<br>**L ID:** Topic | **Friday 1-2 PM**<br>**L ID:** Topic | **Friday 3-4 PM**<br>**L ID:** Topic |
|---|---|---|---|---|---|
| 0 | No Field Trip | | Field Trip:<br>Hunter valley/Gunnedah/<br>Narrabri/Edgeroi/Wee Waa | Field Trip:<br>Hunter valley/Gunnedah/<br>Narrabri/Edgeroi/Wee Waa | Field Trip:<br>Hunter valley/Gunnedah/<br>Narrabri/Edgeroi/Wee Waa |
| 1 | 18 SEP | On-line | **L0-1:** Course Outline and Australian Soil Classification – Part I | **L 2:** Australian Soil Classification - Part II | **L 3:** Australian Soil Classification - Part III |
| 2 | 25 SEP | On-line | **L 4:** Soil Forming Factor: Parent Material (PM) | **L 5:** Soil Forming Factor: PM – Primary/Secondary Minerals | **L 6:** Soil Forming Factor: PM – Primary/Secondary Minerals |
| 3 | 2 OCT | On-line | **L 7:** Cation Exchange Capacity, Exchangeable Cations, Stability Indices | **L 8:** Soil Forming Factor: Climate and Organisms | **L 9:** Soil Forming Factor: Relief and Time |
| 4 | 9 OCT | On-line | **L 10:** Digital soil mapping: Electromagnetic (EM) induction | **L 11:** Digital soil mapping: EM Case Studies (2-d) | **L 12:** Digital soil mapping: EM Case Studies (3-d) |
| 5 | 16 OCT | On-line | **L 13:** Digital soil mapping: Gamma spectrometry | **L 14:** Digital soil mapping: Spectrometry–Case Study (2-d) | **L 15:** Digital soil mapping: Spectrometry–Case Study (Zones) |
| 6 | 23 OCT | | Mid-Session Break | Mid-Session Break | Mid-Session Break |
| 7 | 30 OCT | On-line | **L 16:** Soil: As a three phase system | **L 17:** Soil: Measurement of water | **L 18:** Soil: As a reservoir of water |
| 8 | 6 Nov | On-line | **L 19:** Soil: Water classification | **L 20:** Soil: Saturated hydraulic conductivity | **L 21:** Soil: DSM and Management of water |
| 9 | 13 NOV | On-line | **L 22:** Soil salinization - Primary and Secondary | **L 23:** Soil salinisation: Management | **L 24:** Soil salinisation: DSM and Management of salinity |
| 10 | 20 NOV | On-line | **L 25:** Soil pH: Acidity and alkalinity | **L 26:** Soil pH: Management | **L 27:** Soil pH: DSM and Management of pH/CEC |

[7] UNSW Virtual Handbook: http://www.handbook.unsw.edu.au/2008/index.html
[8] UNSW Timetable: http://www.timetable.unsw.edu.au/

## 6. #GEOS3721Central2020 Assessment Tasks and Feedback

| Week | Task | Knowledge & abilities assessed | Festivals of Knowledge | % of total mark | Date of | | Feedback | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Release | Submission | WHO | WHEN | HOW |
| 1 | Practical 1 | Australian Soil Classification (ASC) | Practical 1: Multiple Choice Quiz | 4 | **In manual** | Week 2 | **Triantafilis** | Week 2 | |
| 1 | Practical 2 | ASC: Edgeroi district | Practical 2: Mapping/interpretation | 4 | **In manual** | Week 2 | **Triantafilis** | Week 9 | |
| 2 | Practical 3 | Clay Mineralogy | Practical 3: Multiple Choice Quiz | 4 | **In manual** | Week 3 | **Triantafilis** | Week 3 | |
| 2 | Practical 4 | CEC, Exchangeable Cations, Soil Stability | Practical 4: Multiple Choice Quiz | 4 | **In manual** | Week 3 | **Triantafilis** | Week 4 | |
| 3 | Practical 5 | Soil morphology and profile description | Practical 5: Multiple Choice Quiz | 4 | **In manual** | Week 4 | **Triantafilis** | Week 5 | |
| 4 | Practical 6 | Familiarise EM + CCA equipment and Case Study | Practical 6: Multiple Choice Quiz | 4 | **In manual** | Week 5 | **Triantafilis** | Week 5 | |
| 5 | Practical 7 | Gamma Radiometrics Case Study | Practical 7: Multiple Choice Quiz | 4 | **In manual** | Week 6 | **Triantafilis** | Week 7 | |
| 5 | Practical 7 | Gamma Radiometrics Case Study | Practical 14: Poster and Presentation | 4 | **In manual** | Week 6 | **Triantafilis** | Week 7 | |
| 6 | Mid-Session Break | Mid-Session Break | Mid-Session Break | | | | | | |
| 7-8 | Practical 10<br>Practical 11 | Soil as a three phase system and Soil particle size analysis | Practical 10: Multiple Choice Quiz<br>Practical 11: Multiple Choice Quiz | 4 | **In manual** | Week 7 | **Triantafilis** | Week 9 | |
| 7-8 | Practical 12<br>Practical 13 | Soil as a reservoir of water and Soil hydraulic conductivity | Practical 12: Multiple Choice Quiz<br>Practical 13: Multiple Choice Quiz | 8 | **In manual** | Week 8 | **Triantafilis** | Week 10 | |
| 9 | Practical 8 | Soil salinization | Practical 8: Multiple Choice Quiz | 4 | **In manual** | Week 9 | **Triantafilis** | Week 8 | |
| 10 | Practical 9 | Soil acidification | Practical 9: Multiple Choice Quiz | 4 | **In manual** | Week 10 | **Triantafilis** | Week 8 | |
| **Final** | Literature Review | DSM | Essay style | 40 | **Written** | TBA | | | |

## 7. #GEOS3721Central2020 Additional Resources and Support

| | |
|---|---|
| **Text Books** | ***General Soil Science*** |
| **Recommended** | Brady, N.C. and Weil R.R. (2002). *Elements of the Nature and Properties of Soil*. Prentice Hall.<br>Charman, P.E.V. and Murphy, B.M. (eds.) (2000) *Soils, Their Properties and Management, 2nd Edition*, Sydney University Press, Sydney.<br>Gerrard, J. (1992) *Soil Geomorphology*, Chapman and Hall, London.<br>Isbell, R.F. (1996)*The Australian soil classification: Australian soil and land survey handbook ; v. 4*. CSIRO Australia, Collingwood.<br>McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. (1998). Australian Soil And Land Survey Field Handbook. CSIRO, Canberra.<br>**McKenzie, N.J., Jacquier, D., Isbell, R., Brown, K. (2004*). Australian Soils and Landscapes: An Illustrated Compendium.* CSIRO, Canberra.**<br>Sharman, M.R., Puri, G (2002) *Essential Soil Science*, Blackwell Publishing, Oxford.<br>White, R.E. (1997). Principles and Practice of Soil Science: The Soil as a Natural Resource. Blackwell Science.<br>Young, A. and Young, R. (2001) *Soils in the Australian Landscape* Oxford University Press. |
| **Text Books** | ***Pedology*** |
| **Recommended** | Gerrard, J. (1992) *Soil Geomorphology*, Chapman and Hall, London.<br>Isbell, R.F. (1996) *The Australian soil classification: Australian soil and land survey handbook ; v. 4*. CSIRO Australia, Collingwood.<br>McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. (1998). *Australian Soil And Land Survey Field Handbook. CSIRO*, Canberra.<br>Young, A. and Young, R. (2001) *Soils in the Australian Landscape* Oxford University Press.<br>Fitzpatrick, E.A. *Soils: Their formation, classification and distribution.*<br>**Singer, M.J. and Munns, D.N. (2006). *Soils: an Introduction.* Prentice Hall.** |
| **Text Books** | ***Soil Water*** |
| **Recommended** | Don Scott, H. (2000). Soil Physics: Agricultural and Environmental Applications. Iowa State University Press.<br>Foth, H.D. (1990). Fundamentals of Soil Science. John Wiley and Sons.<br>Gerrard, J. (2003). Fundamentals of Soils. Routledge. London, UK.<br>Hillel, D. (1998). Environmental Soil Physics. Academic Press.<br>Marshall, T.J., Holmes, J.W., Rose, C.W. (1999). Soil Physics. Cambridge University Press.<br>**Rowell, D.L. (1994). Soil Science: Methods and Applications. Prentice Hall.** |
| **Text Books** | ***Soil Chemistry*** |
| **Recommended** | **White, R.E. (1997). Principles and Practice of Soil Science: The Soil as a Natural Resource. Blackwell Science.**<br>Gardiner, D.T., Miller, R.W. (2004). Soils in our Environment. Prentice Hall.<br>Foth, H.D. (1990). Fundamentals of Soil Science. John Wiley and Sons.<br>Sposito, G. (1989). The Chemistry of Soils. Oxford University Press.<br>Sparks, D.L. (2003). Environmental Soil Chemistry. Elsevier Science. |
| **Text Books** | ***Geophysics*** |
| **Recommended** | Reynolds, J.M. (1997). An Introduction to Applied and Environmental Geophysics. John Wiley and Sons.<br>**Mussett, A.E., Aftab Khan, M. (2000). Looking into the Earth. Cambridge University Press.** |

## 7. #GEOS3721Central2020 Additional Resources and Support (cont.)

| | |
|---|---|
| **Course Manual** | Course manual will be available for students to purchase and to download online. |
| **Required Readings** | Course manual will include laboratory readings and will be available in computer laboratories and from WebVISTA. |
| **Additional Readings** | Course lectures will include any additional readings suggested by academics. |
| **Recommended Internet Sites** | *terra***GIS**: A web-based GIS for Natural Resource Management in cotton growing areas (http://www.terragis.bees.unsw.edu.au/)<br>Australian Collaborative Land Evaluation Program (http://www.clw.csiro.au/aclep/)<br>The Australian Soil Classification (http://www.clw.csiro.au/aclep/asc_re_on_line/soilhome.htm) |
| **Societies** | Australian Soil Science Society (http://www.asssi.asn.au/)<br>Soil Science Society of America (https://www.soils.org/)<br>International Union of Soil Sciences (http://www.iuss.org/) |
| **Journals** | Australian Journal of Soil Research (http://www.publish.csiro.au/nid/84.htm)<br>Soil Use and Management (http://www.wiley.com/bw/journal.asp?ref=0266-0032)<br>Australian Journal of Earth Sciences (http://www.ingentaconnect.com/content/tandf/aes)<br>Australian Journal of Experimental Agriculture (http://www.publish.csiro.au/nid/73.htm)<br>European Journal of Soil Science (http://www.wiley.com/bw/journal.asp?ref=1351-0754)<br>Geoderma (http://www.elsevier.com/wps/find/journaldescription.cws_home/503332/description#description)<br>Soil Science Society of America Journal (http://soil.scijournals.org/)<br>Agronomy Journal (http://agron.scijournals.org/)<br>Vadose Zone (http://vzj.scijournals.org/)<br>Soil Science (http://journals.lww.com/soilsci/pages/default.aspx)<br>Journal of Environmental & Engineering Geophysics (http://jeeg.geoscienceworld.org/)<br>Journal of Applied Geophysics (http://www.elsevier.com/wps/find/journaldescription.cws_home/503333/description#description) |
| **Computer Laboratories or Study Spaces** | Wet Laboratory Room 401<br><br>Computer Laboratory Room 640 |

## 8. #GEOS3721Central2020 Required Equipment, Training and Enabling Skills

| | |
|---|---|
| **Equipment Required** | A data stick is required to download powerpoint presentations used as laboratory templates for electronic tutorials held in Biosciences computing laboratory Room L2 or L5 (i.e. Weeks 0+1, 2, 3 and 5).<br><br>A laboratory coat is necessary in laboratory classes held in Biosciences Room L2 or L5 (i.e. Weeks 4, 8, 9 and 10+11). Laboratory manual is required in all laboratory classes.<br><br>Students are required to wear protective footwear (i.e. closed toe shoes) in all laboratory classes held in the Biosciences wet laboratory Room L2 or L5 (i.e. Weeks 7, 8 and 9) and during the field tutorial held in Narrabri and surrounds. This includes work boots, casual and sports shoes but excludes sandals and thongs. |
| **Enabling Skills Training Required to Complete this Course** | |

## 9. #GEOS3721Central2020 Evaluation and Development

Student feedback is gathered periodically by various means. Such feedback is considered carefully with a view to acting on it constructively wherever possible. This course outline conveys how feedback has helped to shape and develop this course.

| Mechanisms of Review | Last Review Date | Comments or Changes Resulting from Reviews |
|---|---|---|
| **Major Course Review** | | Student comments:<br>*"Change the date of the field trip! Having the field trip so late in the semester does not promote a good learning atmosphere!!!"*<br>*"I realise academic staff can be pressed for time, but I think a 4-day field trip plus a field trip report (due within just 2 weeks) as late as week 12/13 is far from ideal. Most students are busiest at this end of semester, and will struggle to produce a thorough field report due to other assessments."*<br>Given the field trip was seen by most students (see comments below) as a way of reinforcing learning outcomes, but considering the issues of excursion timing and the requirement of a follow up report as a form of assessment, in 2012 the field trip was conducted during mid-session break with field report due one month later. |
| **CATEI**[9] | | **Form A: Course Evaluation - Summary Report**<br>Faculty : Science<br>School : Sch Biol, Earth and Environ Sci<br>Course : GEOS3721-Australian Soil Use and Management<br>Survey Description : Evaluate the Course GEOS3721<br>Survey Alternative : Evaluate the Course GEOS3721<br>Session : 2012 Teaching Period - T2<br>Enrolled : 20<br>Respondents : 14<br>Survey Type : ONLINE (21 Sep 2012 - 13 Nov 2012)<br>Administration Date : 14 Nov 2012<br>**Mode of Study:** Full Time 13 93%; Part Time 1 7%<br>**Gender:** Male 7 50%; Female 7 50%<br>**Residency Group:** Local 11 79%; International 3 21%<br>SA % A % MA % MD % D % SD % NA % L&I C Agree S F GCA scale Mean Rating Response Rate<br>Q1. The aims of this course were clear to me 36 57 7 0 0 0 0 100 92 94 76 5.29 100%<br>Q2. I was given helpful feedback on how I was going in the course 43 43 14 0 0 0 0 100 85 82 76 5.29 100%<br>Q3. The course was challenging and interesting 57 43 0 0 0 0 0 100 92 92 86 5.57 100%<br>Q4. The course provided effective opportunities for active student participation in learning activities 64 36 0 0 0 0 0 100 92 89 80 5.64 100%<br>Q5. The course was effective for developing my thinking skills (e.g. critical analysis, problem solving) 43 43 14 0 0 0 0 100 91 91 76 5.29 100%<br>Q6. I was provided with clear information about the assessment requirements for this course 21 50 29 0 0 0 0 100 92 91 64 4.93 100%<br>Q7. The assessment methods and tasks in this course were appropriate given the course aims 36 21 14 14 14 0 0 71 91 92 41 4.5 100%<br>Q8. The integration of the different components of the course (e.g. laboratory, tutorials and lectures) was useful 29 50 14 0 7 0 0 93 88 90 62 4.93 100%<br>Q9. I learnt a lot from this course 57 36 7 0 0 0 0 100 94 91 83 5.5 100%<br>Q10. Overall, I was satisfied with the quality of this course 36 50 14 0 0 0 0 100 91 91 74 5.21 100% |
| **Other** | | Student comments:<br>*"The interaction was very good. We see concrete application of what we learn or how a particular assessment can be made. It is not abstract, but addresses concrete problems related to soil use and management so that we can understand better the value of learning/doing what we do.""The diversity of topics studied, which kept it interesting and provided a good base of knowledge for more specialised upper level courses. Also the practical elements; laboratories, field trip. They weren't too difficult but reinforced the material well."*<br>*"The integration of different teaching mediums (ie. computer and soil laboratories). The field trip was also useful in developing the knowledge and skills acquired in lectures and laboratory classes."* |

[9] Science CATEI procedure: http://www2.science.unsw.edu.au/guide/slatiq/catei.html

**#GEOS3721Central2020**

# Highlights and Student Teacher Evaluation Comments (2006-2020)

*"The course covered a wide range of soil science issues current in Australia and dealt well with the related management problems."*

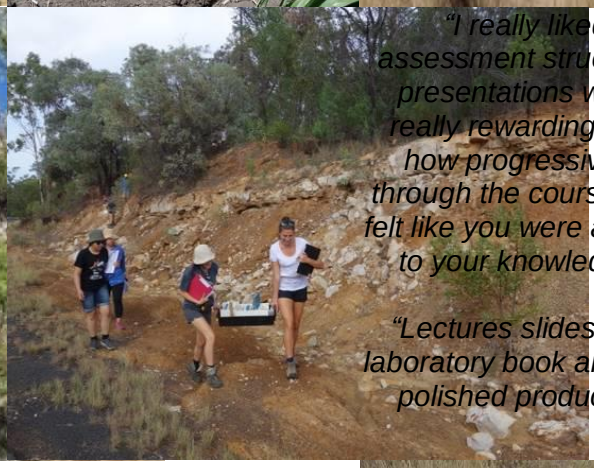
*"The lectures were enjoyable and easy to follow."*

*"This course has definitely been the highlight of my degree so far."*

*"The fantastic structure and in-depth exploration of content made the experience interesting and rewarding."*

*"WHAT A COURSE! This was honestly one of my favourite courses."*

*"The field trip was brilliant. It really helped me develop a profound sense of appreciation for soil."*



*"I really liked assessment structure, presentations were really rewarding and how progressively through the course you felt like you were adding to your knowledge.*

*"Lectures slides and laboratory book are very polished products."*

*"I really liked his approach to class participation and how he let us work together to get an answer."*

*"Great story throughout the whole course."*

*"Excellent consistency across all aspects - lectures, labs and assessment tasks."*

*"Prepares good slides, delivers lectures very well. Listens and makes time for undergraduate students."*

*"The conduct and organisation of content was excellent and delivered with professionalism and personality."*

## 10. #GEOS3721Central2020 Administration Matters

| | | | |
|---|---|---|---|
| **Expectations of Students** | Attendance at lectures, laboratories and the field tutorial is compulsory.<br>www.bees.unsw.edu.au/current/studentoffice.html and<br>www.bees.unsw.edu.au/current/ugradguidelines.html | | |
| **Assessment components** | Festivals of Knowledge (12)48%<br>Poster and Presentation 12%<br>Literature Review 40% | | |
| **Occupational Health and Safety**[10] | **See Section 11.** | | |
| **Travel** | Students will need to arrange their own food during the field tutorial during NO FIELD TRIP IN 2020. Accommodation and travel expenses usually amount to $180, which needs to be paid on-line. | | |
| **Assessment Procedures** | Normal UNSW rules apply to illness, misadventure or other situations which affect attendance at class or submission of assessment tasks. | | |
| **Equity and Diversity** | Students who have a disability that requires adjustment in teaching or learning environment are encouraged to discuss study needs with Convenor prior to course commencing, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or www.equity.unsw.edu.au/disabil.html). Issues to be discussed may include access to materials, signers or note-takers, provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments. Information on designing courses and course outlines that take into account the needs of students with disabilities can be found at:<br>www.secretariat.unsw.edu.au/acboardcom/minutes/coe/disabilityguidelines.pdf | | |
| **Grievance Policy**[11] | **School Contact** | **Faculty Contact** | **University Contact** |
| | Prof Alistair Poore (HoS Biological, Earth and Environmental Sciences)<br>**a.poore@unsw.edu.au** | A/Prof Alison Beavis<br>Associate Dean (Education)<br>**a.beavis@unsw.edu.au**<br>or<br>A/Prof Stephen bonser<br>Director of Teaching<br>**s.bonser@unsw.edu.au** | Compass<br>University Counselling Services[12]<br>Tel: 9385 5418 |

[10] UNSW Occupational Health and Safety: www.riskman.unsw.edu.au/ohs/ohs.shtml
[11] UNSW Grievance Policy: http://www.infonet.unsw.edu.au/poldoc/student_grievance_resolution.pdf
[12] Compass – University Counselling Service http://www.counselling.unsw.edu.au/compass_programs/

## 11. #GEOS3721CENTRAL2020 OH&S OBLIGATIONS

The School of BEES recognises its obligations to provide a safe working environment for all persons involved in School-related activities. To achieve this goal with regards to teaching and learning, the School adopts the UNSW Occupational Health and Safety Policy (2001) and the UNSW OH&S Responsibility and Accountability Document (2001). These documents stipulate that everyone attending a UNSW workplace must ensure their actions do not adversely affect the health and safety of others. This outcome is achieved through the establishment of a documented chain of responsibility and accountability for all persons in the workplace, extending from the Head of School through to the students undertaking courses offered.

As part of this chain of responsibility and accountability, the Course Authority is responsible for ensuring all activities associated with this course are safe. The Course Authority has undertaken detailed risk assessments of all course activities and identified all associated potential hazards. These hazards have been minimised and appropriate steps taken to ensure your health and safety. For each activity, clear written instructions are given and appropriate hazard warnings or risk minimisation procedures included for your protection.

It is the student's responsibility to prepare for all practical work. Students should be familiar with the written procedures scheduled for the practical class and identify all personal protection requirements needed to complete the exercise in a safe manner. Students must comply with all safety instructions given by the Course Authority and/or Laboratory / Field Demonstrator, and observe the Safety Information located outside or within teaching rooms. If you are unsure of any safe operating procedures or written instruction regarding safety, you should seek further information from the Course Authority and/or Laboratory / Field Demonstrator before attempting the task. Failure to comply with safety instructions may, in the first instance, be considered as a form of academic misconduct. If the outcome of a student's failure to comply with safety instructions results in personal injury, or endangers the health and safety of others, then the matter may be dealt with by WorkCover as a breach of the NSW OH&S Act (2000).

**Conditions of Entry To Courses**

To abide with **Section 10 OCCUPATIONAL HEALTH AND SAFETY ACT** of the **N.S.W. Occupational Health & Safety Act (2000):**

**Duties of controllers of work premises, plant or substances**

(1) A person who has control of premises used by people as a place of work must ensure that the premises are safe and without risks to health.

(2) A person who has control of any plant or substance used by people at work must ensure that the plant or substance is safe and without risks to health when properly used.

(3) The duties of a person under this section:

(a) do not apply to premises, plant or substances used only by employees of the person, and

(b) do not apply to premises occupied only as a private dwelling or to plant or substances used in any such premises, and

(c) extend to the means of access to or exit from a place of work, and

(d) apply only if the premises, plant or substances are controlled in the course of a trade, business or other undertaking (whether for profit or not) of the person.

(4) In this section, a person who has control of premises, plant or substances includes:

(a) a person who has only limited control of the premises, plant or substances (in which case any duty under this section applies only to the matters over which the person has control), and

(b) a person who has, under any contract or lease, an obligation to maintain or repair the premises, plant or substances (in which case any duty under this section applies only to the matters covered by the contract or lease).

ENTRY TO SCHOOL BUILDINGS, AND ATTENDANCE ON FIELD EXCURSIONS, WILL BE DENIED TO STUDENTS WHO DO NOT ABIDE BY THESE CONDITIONS.

**Professor Alistair Poore, Head of School**

## 12. UNSW Academic Honesty and Plagiarism

**What is Plagiarism?**

Plagiarism is the presentation of the thoughts or work of another as one's own.
*Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via:
www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle
† Adapted with kind permission from the University of Melbourne

# #GEOS3721Central2020
# Images and Student Photos (2006-2010)