



**FACULTY OF SCIENCE,
ENGINEERING & TECHNOLOGY**

School of Chemistry



Unit Description, 2008

for

KRA121 Chemistry for Applied Agriculture

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This unit description is available on the web at
<http://www.chem.utas.edu.au/teaching/units.html> and <http://vista.utas.edu.au>

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Unit Summary

Unit code	KRA121
Unit title	Chemistry for Applied Agriculture
Unit description	This unit intended to provide you with an introduction to chemical principles sufficient to support your other studies in applied agricultural science. It aims to give you a chemical vocabulary which will enable you to communicate with professional chemists and other scientists and have an understanding of the nature of chemicals which are used in agricultural science. Topics include the nature of matter; the fundamentals of chemical structure and bonding; chemical reactions, the states of matter; an introduction to chemical analysis; acid base chemistry; and organic chemistry.
Special notes	This unit is designed for students in the Associate Degree of Applied Agriculture.
Teaching staff	Dr Greg Dicoski, Dr Michael Gardiner and Ms Juliette Tria
Campus & mode	Hobart, internal, semester 2
Unit weight	12.5%
Teaching pattern	Computer based instruction (through WebCT Vista - MyLO) based on a prescribed text and ancillary materials equivalent to 26 lectures, 13 tutorials, 9 x 2 hours laboratory.
Prerequisites	None.
Corequisites	None.
Mutual exclusions	KRA001.
Assessment	Test 10%, Exam 40%, assignments 20%, mathematics review 5%, tutorials 5%, laboratory 20%
Required texts, etc	Seager and Slabaugh, <i>Introductory Chemistry for Today</i> , 6 th ed, BrooksCole, 0495112798 (compulsory acquisition) <i>KRA121 Study Guide & Resources</i> (available from UniPrint) <i>KRA121 Laboratory Manual and Report Book</i> (available from UniPrint). The details of the experiments are also available for printing through WebCT Vista - MyLO: http://www.utas.edu.au/coursesonline <i>Extra material</i> . Available through WebCT - MyLO: Http://www.utas.edu.au/coursesonline .
Essential Requirement	Computer with internet access.

Introduction:

This unit concentrates provides an introduction to chemistry at the level sufficient to support other studies in science of chemistry. Some knowledge of chemistry is essential not only within the sciences, but in the general education of everyone in today's world. Topics of relevance to our survival such as global warming, clean coal technology, ozone destruction, cures for disease, agriculture and horticulture and the control of pests involve the use (and) misuse of chemistry and chemical compounds. Learning chemistry is like learning a foreign language, there is a vocabulary which must be learnt and understood. Chemistry is about rationalising the chemical and physical behaviour of matter. There are literally millions of chemical compounds known and chemistry seeks to classify and organise these chemicals so that we better understand their behaviour. To that end KRA121 begins with a description of the fundamental nature of matter down to the structure of the atoms of individual elements. This leads to an understanding of the nature of bonding between atoms which is the basis of chemical behaviour and of the interactions between molecules which is the basis for understanding the physical properties of matter. It is important to realise that without these weak intermolecular forces life as we know it could not exist, water would be a gas at room temperature and the DNA chain would not be held in its spiral shape. The driving forces behind chemical reactions (why chemicals react) are identified and the concept of equilibrium in chemical reactions and in particular in acid/base chemistry, is introduced. A brief introduction to the vast chemistry of carbon (organic chemistry) concludes the course.

Learning Outcomes:

When you have completed this unit you should be able to:

- classify matter under the general heading of mixtures and pure substances and know what are the characteristics of each
- classify pure substances as elements or compounds
- understand that elements consist of atoms and that the atoms of one element are different from the atoms of another element
- describe the structure of an atom in terms of the fundamental particles, the proton; the neutron; and the electron
- understand how the periodic table of the elements was developed and how it relates to electronic structure
- use the periodic table to predict trends in physical properties of elements and compounds
- use the concept of electronegativity to predict the nature of the bond formed between elements
- name a wide range of chemical compounds
- write and balance chemical equations
- identify the 'driving force' behind a chemical reaction
- understand the mole concept
- carry out calculations using the ideal gas law, Daltons law of partial pressure and Graham's law of diffusion
- perform calculations on chemical reactions using the mole concept (stoichiometric relationships, limiting reagent, theoretical yield, percentage yield)
- perform titration calculations
- recognise that all reactions will come to equilibrium and to be able to write down the equilibrium constant expression for any balanced equation

- recognise acids as proton donors and bases as proton acceptors and acid-base conjugate pairs
- define pH and to recognise the importance of pH in natural systems
- measure pH in the laboratory and explain how the pH can be controlled by the use of buffers
- know the difference between a weak and strong acid and a weak and strong electrolyte
- calculate the average rate for a reaction from appropriate concentration time data
- understand why there are so many compounds of carbon and hydrogen (plus oxygen and nitrogen)
- name the alkanes, alkenes and alkynes
- understand why many organic compounds form isomers
- know some of the reactions of alkanes, alkenes and alkynes
- recognise the importance of functional groups in organic chemistry
- apply previously learned fundamental concepts from your study of the textbook and the laboratory exercises to a range of chemical and agricultural problems
- learn some basic experimental skills which will allow application of some of the topics listed above to chemical analysis
- critically appraise both your own work along with that of your peers

Details of Teaching Arrangements:

Lectures

THERE ARE NO LECTURES IN THIS UNIT.

Why are there no lectures in this unit???

When this unit first started about ten years ago it was a conventional 2 lectures, 1 tutorial and 3hrs of lab unit. It didn't work. The failure rate was unacceptable and the students disliked the unit despite our best efforts.

The main reason for this was that the students enrolling in the course had a wide range of chemical knowledge ranging from almost no science to Year 12 TCE chemistry. The lecture system was too inflexible to cope with this variety of backgrounds; if the level was pitched too low some students were bored; if it was pitched too high another group of students dropped out because they couldn't understand it.

The present course arose out of the adaptation of a distance learning course offered by the University of New England. This course used detailed hardcopy reading guides coupled to a textbook. With the advent of WebCT - MyLO we transferred this to an online course because it gave us greater flexibility with assignments and avoided the need to print out the study guides (which were about 500 pages long) which required frequent updating as the textbook changed editions. The tutorials and the laboratory were retained as this gave us the opportunity to provide feedback on and help with some of the more difficult concepts in the unit.

This year as a result of the student evaluation of the course 2006, the course has been essentially rewritten. The study guides accompanying each chapter are shorter and the course has been divided into three major themes linked to a collection of chapters.

The weighting of this unit is 12.5 %, which means it is $\frac{1}{4}$ of your semester load. If it is assumed that a normal week at University involves at least 40 hours of work involving lectures, tutorials, laboratories, study, completion of assessment items, etc, then it is important to recognise that you should allocate about 8 -10 hours a week, as a minimum, towards this unit. This includes the two hours of laboratory work and the one hour tutorial. You should also allocate two one hour time slots in your timetable for you to read the text, make notes etc much as you would do in a lecture. The remaining time is for doing assignments and exercises as you would for any other course with a weighting similar to this course.

Self Study Program

The course is a self paced program based around the required text, ancillary material available through WebCT Vista - MyLO and the printed notes, which must be completed during the semester and presented at the tutorials. The course content follows the chapters in the set text and you should allow up to TEN HOURS a week/chapter of study (including laboratory work, tutorials and time to complete the assignments) to complete the course. For each chapter of the book there is a study guide available which contains supporting material (summary slides, quick quiz and additional reading).

The course has been divided into three major threads. The first thread concerns the development of ideas on the nature of matter; the second thread is concerned with solutions, chemical reactions and equilibria; while the third thread focuses on the chemistry of carbon based compounds.

Further details about the course content, study targets and how to use the course materials is contained in the Course Overview available in WebCT Vista - MyLO and from the material available for purchase (at cost) from Uniprint.

Course Presentation

This course is delivered via a Web Browser using the presentation tool WebCT Vista - MyLO. This unit is a self-paced subject, which means you will be provided with a course structure from a textbook of what you must have covered by given dates. This means you will be able to study when it is convenient to you. There are no formal lectures for you to attend, however regular tutorial will be conducted, and you can contact your lecturer in person, by E-mail or by telephone anytime for assistance.

A tutorial on this program will be conducted on Monday the 17th of July 2006 from 4:00 pm until 5:00 pm. At this tutorial instructions will be provided detailing how to use this system.

WebCT Vista - MyLO is a computer-based program that is stored on a server and accessed via the Internet. WebCT Vista - MyLO is accessible from any personal computer that is connected to the Internet and equipped with compatible Web browser software (see below). *A valid username and password must be entered to access the WebCT Vista - MyLO course.*

Web Browsers

For optimal performance, any computer used to access Web Tutor should be equipped with one of the following *frames-capable* Web browsers:

Browser:	Version(s):
Netscape Communicator	5.5 and higher
Microsoft Internet Explorer	5.5 and higher

Whichever browser you use, the browser preferences *must* be set to enable **Java/JavaScript** and to accept **Cookies**. Please consult the “Help” file in your Web Browser for information on setting the preferences.

Screen Settings

For best results, your computer monitor should be set to display at 800 x 600 pixels.

You will be able to access this program from both inside and outside the School of Chemistry and the wider University.

To access WebCT - MyLO within the School of Chemistry Computer Laboratory in Room 309A of the Chemistry building, you will need to have a user name and password. This room will be open from 9:00 to at least 17:00 daily, Monday to Friday. If you require assistance with computers please contact Mr Graham Meredith or Dr Greg Dicoski.

Further information is available from within the on-line course, and you are encouraged to read all the information provided.

To register:

1. Connect to the Internet (*User ID: 1stYear, Password: polonium*) and open your Web browser (Internet Explorer or Netscape) software.
2. In the Address or Location box, enter the course URL:
[Http://www.utas.edu.au/coursesonline](http://www.utas.edu.au/coursesonline).
3. You can also access WebCT Vista - MyLO from the School of Chemistry home page [Http://www.chem.utas.edu.au](http://www.chem.utas.edu.au) and click on the Internal Resources link followed by the WebCT - MyLO link or from the Universities home page by using the Current Students link and then the My MyLO link.
4. Click on **Log On To My MyLO**
5. At the next screen, enter the requested information, ensuring you follow the directives and guidelines given earlier.
 - You must enter your WebCT - MyLO ID – which is your E-mail pop account name - that is, the first part (the **xxxxxxx**) of your e-mail address ~ **xxxxxxx@postoffice.utas.edu.au**.
 - You must enter your own *Password* – which is your E-mail pop account password.
6. Click "OK" to enter your My MyLO.
7. Click on the course – KRA121 Chemistry 1 for Applied Agriculture. This should now give you access to the home page for the course
8. When leaving WebCT Vista - MyLO close the browser

* Remember that both usernames and passwords are case-sensitive. It is **important** that you use the above format for your *Username* and *Password*.

To access the course overview, course content etc you can either click on the icons on the home page or use the course menu on the left hand side of the page. This menu is always displayed.

Before commencing the course it is important that you read the **Course Overview**. This describes the way the course is run and assessed and also gives you useful hints on how to study the course. You should refer to the course overview from time to time to refresh your memory on its contents.

Tools

WebCT - MyLO consists of a series of tool pages (not all of which will be available for this course). An overview is given below.

Overview of Tools

“Tools” refers to the interactive features that allow you to work with the course content to enhance your learning. Tools also facilitate group collaboration and communications. Although each course is presented with a default set of tools, instructors may add or remove them, change their location, and select a graphic style for the icons. As illustrated in Figure 1, tools may be linked to a specific Path page or grouped together on a Tool Page. Each tool has an icon which, when you click it, opens the tool. The following list summarizes the types of tools available, and how they may be grouped. For a complete list of tools, consult the online User Guide.

- **Communication tools:**

Intra-class E-mail; real-time chat rooms; threaded discussions; and a real-time white board.

- **Online quizzes (Assignments):**

Online quizzes with automatic feedback and grading.

- **Calendar:**

Specific events and due dates for your class, updated by your instructor.

- **Course information:**

Screens with details on policies, course materials, the instructor, and objectives.

- **Resource tools:**

Hyper-linked **glossary** (Key Words at the end of every Chapter); Web site links; image database.

- **Presentations and Home Pages:**

Tools that enable students to form online groups and upload/download collaborative projects and personal Home Pages.

- **Course tools:**

Index; search tool; batch printing tool.

- **Self Tests:**

Online quizzes (at the end of every Chapter) with on feedback, useful for revision and reviewing progress. The answers you give are not recorded for assessment purposes

- **My Record and My Progress:**

Enable viewing of personal test scores, course participation, and other evaluations.

Helpful Hints

- **Keep in mind:**

Your instructor can change the content and tools included in your course. Therefore, *you may not see every possible feature.*

- **Finding your starting place:**

The heart of the course is the content Path. Click the Contents icon to open the Table of Contents for the Path. The Path is organized by chapter, which tells you which pages to view and when.

- **Checking your records:**

Click My Progress to review your online participation records. Click My Record to review all of your grades. *Note: other students cannot view your personal information.*

- **Calendar:**

Click the Calendar icon to see the latest information on class meetings, due dates, and exam schedules. You can make your own entries on the calendar.

- **E-mail:**

Click the E-mail icon to send messages to class members within WebCT - MyLO ONLY. Remember that this e-mail account is restricted to class communications. Therefore, you must log on to Web Tutor to use E-mail.

- **Chat:**

To participate in real-time chats, first click the Chat icon. Next click on a Chat room to enter it. To post a message, enter it in the box at the bottom of the screen, then press <Return>. To sign out of a chat room, make sure to click Quit.

- **Discussion:**

The Discussion bulletin boards can be accessed in two ways:

1. Click the Discussion link within a Path chapter. You will be automatically linked to a specific discussion forum for that chapter.
2. Click the Bulletins icon (if available). To choose a discussion group, click Forums in the menu. Some forums may be restricted to particular students.
3. Be sure to check the Bulletin Board weekly for notifications. Also look for messages when you log on.

Important Note:

To be successful in this course you must establish regular study patterns. The computers in the School of Chemistry are available from 9.00 am to 5.00 pm Monday to Friday (at least) but you can work from any computer which is linked to the internet. Although WebCT - MyLO will operate under Netscape and Explorer there appears to be a problem with the glossary when using Netscape.

Remember to email the course coordinator listing problems you are having with the course material before the Friday tutorial.

CHECK your email on a regular basis, as this is how we will communicate.

If you have problems accessing the course let us know making sure you give us details of the problem in writing. Most problems arise from students not completing assignments or failing to submit assignments having completed them.

Remember to log off from your browser and to log off from the computer when you have finished

Mathematical Skills

Many of the problems that students have with chemistry can be traced back to their inability to apply basic arithmetic and algebraic concepts to problem solving. In order to identify weaknesses in your mathematics background you will be required to do a Mathematics in Chemistry revision module (along with a self-check quiz) and test (conducted on Friday the 18th of July at 09:00 am in Room 309A – Chemistry computer Laboratory) in Week 1 of the course. You will then be directed to appropriate learning materials to help you correct any deficiencies identified. This test counts 5% towards your final assessment and will be awarded on the basis of your test results.

Tutorials

Tutorials are an important part of the teaching program and as such are COMPULSORY. They enable you to monitor your progress through the course, obtain feedback on your assignments, obtain assistance, and to provide feedback to us on problems with the course. These sessions are also an opportunity to expand on the content presented in the textbook and give you a broader, deeper and more appreciative understanding of chemistry. There are a number of questions in the study guide which you must prepare for prior to attending the tutorials. You may be from time to time asked to prepare a five minute topic for discussion at the tutorial. Your completed study guide with worked problems, etc must also be presented at each tutorial. This book will be signed by the lecturer to ensure completion and attendance at the tutorials. At the end of the semester a mark out of 5% will be allocated for tutorial attendance and completion of the study guide.

Times: Friday, 09.00 – 09.50

Location: Room Chem327

Schedule: 13 tutorials throughout the year.

The Chemistry Club Room (room 104) can also be used as a study room. There are numerous chemistry texts (donated by staff) available for your use. Please do not remove these books from the room.

Assignments

Assignments, 5 in total, will need to be completed during the course of the semester. These assignments will be multiple-choice, and must be completed within the WebCT - MyLO on-line course. These assignments will consist of multiple-choice questions based on the preceding two weeks work. You are encouraged to discuss amongst yourselves the best way to answer these assignments, *however direct copying of answers from other students is considered in the same light as cheating in the examination and will be treated as such.* The timetable for assignment completion is given below.

- Mathematics Revision, Total Marks 30, 30 Questions, Due 18th of July 2008.
- Safety Test, Total Marks 20, 10 Questions, Due 23rd of July 2008.
- Assignment 1, Total Marks 100, 25 Questions, Chapters 1-3, Due 8th of August 2008.
- Assignment 2, Total Marks 100, 25 Questions, Chapters 4, 6, Due 22nd of August 2008.
- Assignment 3, Total Marks 100, 25 Questions, Chapters 5, 7, Due 12th of September 2008.
- Assignment 4, Total Marks 100, 25 Questions, Chapters 8-9, Due 26th of September 2008.
- Assignment 5, Total Marks 100, 25 Questions, Chapters 11-12, Due 10th of October 2008.

As these assignments are worth 30 % to your overall mark, you are strongly encouraged to complete all the assignments. These assignments are designed to enhance your learning of the unit material. Each student will receive a different assignment, and you will only be allowed a single attempt at each assignment.

Study Day

During the study week at the end of the semester (week beginning the 20th of October 2008), on a day and time to be advised a study day will be held in the Chemistry Building. This will include a BBQ and tutorials to focus on past examination papers for the unit. Attendance at this session is highly encouraged, and the date will be advised during the semester.

Laboratory Course

- Aims: The laboratory course includes experiments designed to illustrate specific lecture material. An important aspect of the laboratory program is the emphasis of safety in the chemical laboratory and the safe handling of chemicals
- Times: The laboratory session involves one 2 hour session for 9 weeks, commencing Week 15, which is Wednesday, the 23rd of July 2008. The laboratory classes will be held in Room 214 on the 2nd level in the Chemistry building.
- Location: Level 2 teaching laboratories (room 214)
- Schedule: 2 hrs/week for 9 weeks. See timetable on last page.
- OH&S: The University is committed to providing a safe and secure teaching and learning environment. In addition to specific requirements of this unit you should refer to the University's policy at:
http://www.admin.utas.edu.au/hr/ohs/pol_proc/ohs.pdf.

Occupational health and safety is emphasised as part of the laboratory course. Before attending the first session, students are expected to have a laboratory coat, safety glasses or goggles (available from the union shop) (note that: normal spectacles are not acceptable and safety glasses which fully cover these are required; and contact lenses pose an additional risk in the chemical laboratory and if worn you should wear a pair of safety goggles which fully enclose your eyes), covered footwear, and restrained hair.

In the laboratory there is a risk assessment of every experiment you will perform. If you are uncertain of the hazards involved in carrying out the experiment, consult the risk assessment before commencing the experiment. Copies of these risk assessments are available in WebCT Vista - MyLO, while the Material Safety Datasheets (MSDS's) are available from within the ChemWatch

program (loaded on the Chemistry Computer Laboratory machines) or from the InfoSafe program (available from the University Intranet site at: [Http://infosafe.utas.edu.au](http://infosafe.utas.edu.au)).

Exemption: Students who are repeating the unit may be eligible for a full or partial laboratory course exemption. A necessary condition is that you have already obtained a mark of 60% or greater for the laboratory component of the unit in the previous year. Any student seeking an exemption will need to make a written application to the Unit Coordinator (Dr Greg Dicoski).

Laboratory Manual: The laboratory manual and report book for this unit are available for purchase from UniPrint, which is located opposite the Arts building on the northern side of Churchill Avenue. These booklets MUST be purchased, along with your laboratory coat and safety glasses prior to your first laboratory session.

Laboratory Expts: The list of experiments for 2008 is:

- Experiment 1 - Chemical Safety
- Experiment 2 - The Analysis of a Solution by Measurement of its Density
- Experiment 3 - Separation of Mixtures: Distillation as a Separation Technique
- Experiment 4 - The Analysis of an Alcoholic Beverage
- Experiment 5 - Determination of Water in Margarine
- Experiment 6 - Preparation and Standardisation of Sodium Hydroxide Solution
- Experiment 7 - Identification of a Carboxylic Acid
- Experiment 8 - Properties of Solutions of Acids and Bases
- Experiment 9 - An Introduction to Spectrophotometry

Laboratory Reports: Laboratory reports are to be completed in the Laboratory Report Book, and are due immediately after the completion of each experiment, via a template style report. All reports must be submitted to Ms Juliette Tria. Reports should normally be available for collection one (1) week after submission in the next laboratory session.

Laboratory The main aim of the laboratory program is to introduce to the safe and correct use of equipment and chemicals found in a typical laboratory and to support some of the course content.

Assessment Details:

Test and Examination

NOTE: Only material contained in the textbook will be examined – tutorial extension material will not be asked in the mid-semester test or end of year examination.

Mid Semester Test:

<u>Content:</u>	Chapters 1 – 6, 1 hr
<u>Format:</u>	Questions are to be answered in full written format in the supplied examination paper
<u>Weighting:</u>	10%
<u>Date:</u>	Friday the 29 th of August 2008 in Lecture Theatre Chem327
<u>Time:</u>	09:00 am
<u>Duration:</u>	60 minutes (1 hour)
<u>Format:</u>	Short answer questions to be completed on the supplied examination paper.

End of Year Exam:

<u>Content:</u>	Chapters 1 – 9, 11, 12. Please note that the laboratory work may also be examined
<u>Weighting:</u>	40%
<u>Date:</u>	The ends of semester examinations are conducted by the University Registrar in the formal examination period. See the <i>Current Students</i> homepage on the University's website
<u>Time:</u>	Consult the University Examination Timetable published during the second half of semester 2
<u>Question:</u>	Short answer question
<u>Duration:</u>	180 minutes (3 hours)
<u>Format:</u>	Questions are to be answered in full written format on the supplied examination paper. No other written material, including UTAs examination booklets will be assessed.

Laboratory

Weighting: 20%: Safety Course 2.5%, Laboratory work 17.5%

Due dates: Refer above and to the information in the Laboratory Manual.

Assignments (5 in total)

Weighting: 20%

Due Dates: As set out in the Unit Schedule on Page 19

Mathematics Revision Module

Weighting: 5%

Due Dates: As set out in the Unit Schedule on Page 19

Tutorials (12 in total)

Weighting: 5%

Minimum Requirements:

In order to pass this unit students must achieve a minimum of 45% in all aspects of the assessment, especially the laboratory and examination components.

A calculator of any design which can perform basic scientific calculations may be used during this unit and in the examination. It is assumed that students are facile with the use of this scientific calculator and the questions will be set accordingly.

Graduate Attributes:

The University has defined a set of generic graduate attributes that can be expected of all graduates. The policy document can be found at:

[Http://www.utas.edu.au/tl/supporting/ga/](http://www.utas.edu.au/tl/supporting/ga/).

Submission of Assignments

Lecturers and laboratory coordinators will provide details of when and where assignments and laboratory reports are due to be submitted. A signed cover sheet is required for every assignment and practical report - please see the statement on plagiarism later in this handout. The cover sheets will be available from the lecturer or outside the laboratory, respectively, or from www.utas.edu.au/plagiarism.

Requests for Extensions

Applications for extensions due to extenuating circumstances (such as a medical condition) are required **before the due date of the work** and should be made known to the topic lecturer (for assignments) or the laboratory coordinator (for laboratory reports) as soon as practicable. Students without a medical certificate for absence will be assumed to have scored zero for the experiments/assignments not submitted.

How your Final Result is Determined

From time to time, it may be necessary to re-scale marks to allow for what is determined to be either a relatively tough or easy assessment task compared with previous years. The procedure for this is governed by the Faculty policy available on the web at http://fcms.its.utas.edu.au/files/policies/Operational_guide4.pdf. Final grades are determined in accordance with Faculty policy which is also available on the web at http://fcms.its.utas.edu.au/files/policies/Operational_guide5.pdf.

Specific attendance/performance requirements

In order to pass this unit, students must achieve a minimum of 45% in both the examination and laboratory components. In addition, to obtain a pass in the laboratory course, you must have submitted reports for at least 70% of the scheduled experiments.

Review of results and appeals

All students may have their results reviewed in accordance with the Faculty policy available on the web at http://fcms.its.utas.edu.au/files/policies/Operational_guide6.pdf.

Academic referencing

In your written work you will need to support your ideas by referring to scholarly literature, works of art and/or inventions. It is important that you understand how to correctly refer to the work of others and maintain academic integrity.

Failure to appropriately acknowledge the ideas of others constitutes academic dishonesty (plagiarism), a matter considered by the University of Tasmania as a serious offence.

The appropriate referencing style for this unit is that used by *Analytical Chemistry*, *Analytica Chimica Acta* or the *Journal of Chromatography A*.

For information on presentation of assignments, including referencing styles see <http://www.utas.edu.au/library/assist/gpoa/gpoa.html>.

Please read the following statement on plagiarism. Should you require clarification please see your unit coordinator or lecturer

Other Materials Required

A calculator of any design which can perform basic scientific calculations may be used during this unit and in the examination. It is assumed that students are facile with the use of this scientific calculator and the questions will be set accordingly.

Plagiarism

Plagiarism is a form of cheating. It is taking and using someone else's thoughts, writings or inventions and representing them as your own; for example, using an author's words without putting them in quotation marks and citing the source, using an author's ideas without proper acknowledgment and citation or copying another student's work. In fact the intentional copying and submission of someone else's work as one's own is a serious

offense tantamount to academic fraud. It is a University offense punishable by a range of penalties that may range from a fine or deduction/cancellation of marks and, in the most serious of cases, exclusion from a unit, a course, or the University. **When in doubt consult your lecturer or tutor.** Details of penalties that can be imposed are available in the Ordinance of Student Discipline or at www.utas.edu.au/plagiarism.

Nexus Journal



Nexus: *journal of undergraduate science, engineering, and technology* is published annually and contains the work of undergraduates. This unit contains assignments that are suitable for submission to the journal. For more information, ask your lecturer, and see <http://www.utas.edu.au/scieng/nexus>.

Course Evaluation:

The School of Chemistry is an active participant in the Student Evaluation of Teaching and Learning (SETL) Program. The aim of the evaluation is to obtain constructive feedback on our teaching program and the services that we provide so that we can improve the content and presentation of our courses. Towards the end of each lecture block you will be asked to complete several teaching and a unit SETL. Many changes to previous incarnations of this units have been made as a result of student feedback and this process will continue as part of this revised unit. As well as SETLs, you should not hesitate to approach the Unit Coordinator or lecturer concerned if you have any problems during the year. Any difficulties may also be raised with the Chemistry Club (or the postgraduate representative), which arranges regular meetings between student representatives and the Head of the School.

Learning Expectations and Strategies

Expectations

The University is committed to high standards of professional conduct in all activities, and holds its commitment and responsibilities to its students as being of paramount importance. Likewise, it holds expectations about the responsibilities students have as they pursue their studies within the special environment the University offers.

The University's Code of Conduct for Teaching and Learning states:

Students are expected to participate actively and positively in the teaching/learning environment. They must attend classes when and as required, strive to maintain steady progress within the subject or unit framework, comply with workload expectations, and submit required work on time.

Learning strategies

The form of teaching used in this course may be new to you. You need to take responsibility for your own learning and organize your timetable carefully. It is important that you schedule at least two hours a week as fixed study times (equivalent to having lecture slots in your timetable) for your study of the text.

The course overview in WebCT - MyLO provides suggestions on how use the course materials. If you need assistance in preparing for study please refer to your tutor or lecturer. For additional information refer to the Learning Development website: <http://www.utas.edu.au/learndev/>

If you will be using WebCT Vista - MyLO for the first time and would like some information on how to use WebCT Vista - MyLO refer to the following guide: http://www.utas.edu.au/coursesonline/docs/using_webct.pdf

Further Information and Assistance

If you are experiencing difficulties with your studies or assignments, have personal or life planning issues, disability or illness which may affect your course of study, you are advised to raise these with your lecturer in the first instance.

There is a range of University-wide support services available to you including Student Services, International Services and Learning Development. Please refer to the *Current Students* homepage at: <http://www.utas.edu.au/students/>.

Should you require assistance in accessing the Library visit their website for more information at <http://www.utas.edu.au/library/>.

The University aims to ensure that your time here is enjoyable and rewarding. However if you have a concern or complaint that is affecting your study, the University has created a web page (<http://www.utas.edu.au/tl/students/>) to offer you guidance on solving these problems. Most issues can be resolved informally and therefore you are encouraged to discuss the matter with the person involved as a first step. The web page deals primarily with complaints concerning assessment and academic progress; however advice on who to contact concerning complaints about non-academic issues is also included.

Additional Help:

If you experiencing difficulties with your studies or assignments, have personal or life planning issues, disability or illness which may affect your course of study, you should raise these with your lecturer and/or one or more of the following Student Services staff.

- Learning Skills Advisor on 6226-2781
- Student Counsellor on 6226-2099/2104
- Careers Advisor on 6226-2098/2263
- Disability Officer on 6226-2381
- Child Care on 6226-2088
- University Chaplains on 6226-2385
- Student Employment Service on 6226-2511
- University Doctors' Surgery on 6226-2102/7461
- English Language Centre on 6226-2706
- International Student Office on 6226-7836

Electronic Resources

1. School of Chemistry home page:
<http://www.scieng.utas.edu.au/chem/>
2. School of Chemistry safety page:
<http://www.chem.utas.edu.au/chemresources/chemsafety.htm>
3. School of Chemistry student resources page:
<http://www.chem.utas.edu.au/chemresources/reshome.htm>
4. University's WebCT Vista - MyLO site:
<http://www.utas.edu.au/coursesonline>
5. University Handbook entry for KRA121 – Chemistry for Applied Agriculture:
<http://www.utas.edu.au/units/KRA121>
6. University's Student Complaints website:
http://www.admin.utas.edu.au/ac_serv/complaints_info.html

Staff Contacts and Responsibilities

General enquiries should be directed to the unit coordinator (Dr GW Dicoski). Ask individual lecturers for questions relating directly to their lecture topic. Students are welcome to discuss particular problems with the Head of School, A/Prof Brian Yates (room 204). There is also a "suggestion box" in the foyer of the chemistry building for constructive, confidential comments. Students are also able to contact the student representative on the School of Chemistry Staff Meetings – Mr Sam Karpeniec (room 306) regarding specific issues.

The following is a listing of all staff members associated with KRA121 – Chemistry for Applied Agriculture showing their contact details and any specific responsibilities for the unit:

Staff Member	Room	Telephone	Responsibility
Dr Greg Dicoski Greg.Dicoski@utas.edu.au	403	6226-2166	Unit Co-ordinator
Dr Michael Gardiner Michael.Gardiner@utas.edu.au	304	6226-2404	Unit Teaching Staff
Ms Juliette Tria jtria@postoffice.utas.edu.au	401	6226-2180	Laboratory Demonstrator
Mr Jarrod Coad Jarrod.Coad@utas.edu.au	216	6226-2153	Level 2 Lab Technician

Essential Texts:

1. Seager, S.L., and Slabaugh, M.R., *Introductory Chemistry for Today*, 6th Edition, **2007**, Thomson Brooks/Cole Publishing, ISBN:0-495-11279-8

Reference Texts:

1. Zumdahl, S.S., *Introductory Chemistry – a foundation*, 5th Edition, **2004**, Houghton Mifflin, ISBN: 0-618-30499-1.
2. Zumdahl, S.S., *Introductory Chemistry – a foundation*, 4th Edition, **2000**, Houghton Mifflin, ISBN: 0-395-95536-X.
3. Bryson, B., *A Short History of Nearly Everything*, **2003**, Black Swan. ISBN:0-552-99704-8, Chapters 7 and 9
4. Selinger, B., *Chemistry in the Market Place*, 5th Edition, **1998**, Harcourt Brace, ISBN: 0-7295-3300-X

Unit Schedule

Week	Week Beginning	Topic	Assignment	Laboratory	Tutorials
				Wednesday Rm 214; 09:00	Friday Rm 327; 09:00
14	14 July	Maths in Chem Module + Test	-	-	14 th – 4:00 pm 18 th – 9:00 am
15	21 July	Chapters 1&2	-	1: Chemical Safety	25/07/08
16	28 July	Chapter 3		2: The Analysis of a Solution by Measurement of its Density	01/08/08
17	04 August	Chapter 4	1: Ch 1 - 3 Due 08/08/08	3: Separation of Mixtures: Distillation as a Separation Technique	08/08/08
18	11 August	Chapter 6	-	4: The Analysis of an Alcoholic Beverage	15/08/08
19	18 August	Chapter 5	2: Ch 4, 6 Due 22/08/08	5: Determination of Water in Margarine	22/08/08
20	25 August	Chapter 7	-	-	29/08/08 Mid Semester Test Ch 1 - 6
Break	01 September	Mid-Semester Break			
21	08 September	Chapter 8	3: Ch 5, 7 Due 12/09/08	6: Preparation and Standardisation of Sodium Hydroxide Solution	12/09/08
22	15 September	Chapter 9	-	7: Identification of a Carboxylic Acid	19/09/08
23	22 September	Chapter 11	4: Ch 8, 9 Due 26/09/08	8: An Introduction to Spectrophotometry	26/09/08
24	29 September	Chapter 12	-	9: Properties of Solutions of Acids and Bases	03/10/08
25	06 October	Revision	5: Ch 11, 12 Due 10/10/08	-	10/10/08
26	13 October	Revision	-	-	17/10/08
Study Week	20 October	A Study Day During This Week (TBA)			

Final Comments:

As the course coordinator for this subject, I hope that you enjoy KRA121 – Chemistry for Applied Agriculture. Remember that if you have any problems, difficulties or queries what so ever, do not hesitate to contact me to sort them out as soon as possible.

Good luck and study hard.

GW Dicinowski

University of Tasmania, School of Chemistry, Winter, 2008.