SCHOOL OF PHYSICAL AND GEOGRAPHICAL SCIENCES

Forensic Science Team Project

CHE-30011

Module Handbook
2014-2015

Aims of the module

This module will enable you to develop and apply your knowledge and understanding of forensic science through working as part of a team within a research project context. You will also further develop your interpersonal and communication skills.

Learning Outcomes

On successful completion of this module, you will be able to:

- Plan and initiate a programme of practical work into a clearly defined area of the proposed forensic project.
- Critically appraise information of relevance to the project in general and your specific area, obtained from a variety of sources.
- Communicate verbally the project aims, key literature findings, and plans for practical work.
- Carry out a planned programme of investigative laboratory work, continually analysing the data obtained, enabling informed decisions to be made.
- Communicate verbally the results obtained and offer interpretation. Summarise the key findings.
- Produce an individual project report outlining the project background, individual results and interpretation, group results and their relevance, a critical evaluation of findings overall, and conclusion.
**IMPORTANT CONTACTS**

*Module tutor*

Dr David F. Thompson  
LJ0.17A  
(7)34954  
d.f.thompson@keele.ac.uk

Plus your designated project supervisors

*Laboratory*

Leanne Jones  
LJ1.70  
(7)33187  
l.jones@keele.ac.uk

All equipment, materials and access to instrumentation (e.g. Raman, IR spectrometers) for each lab session must be pre-booked with Leanne using the form provided.

**TIMES OF CLASSES**

<table>
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<tr>
<th>Laboratory</th>
<th>Either</th>
<th>Tuesday 2pm – 5pm</th>
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<tr>
<td></td>
<td>or</td>
<td>Friday 2pm – 5pm</td>
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You will be allocated one of these laboratory slots and should adhere to that time unless you have the agreement of your supervisor AND you have made the necessary arrangements with the laboratory staff. There is also a literature and ethics workshop with CDA and CCE on the Monday afternoon of week 2.

**OPERATION OF THE MODULE**

The first meeting in week 1 (Monday 29th September), is devoted to describing the operation of the module, health and safety issues, literature research techniques and the avoidance of plagiarism. The Blackboard page is an important resource for students on this module, which you will be registered on.

https://openathens.keele.ac.uk/oala/login/keele

This hosts a variety of information relevant to the module and provides a means of communication between the tutors and students.

In total you are assigned around 50 hours of laboratory time over the two semesters, and you are expected to adhere to this. You will attend progress meetings with your supervisor every three weeks or so which will occupy ~7 hours. You will have two assessed interview sessions for which you should prepare (6 hours) while research and data analysis will take around a further 50 hours. The remainder of the time should be spent on report writing activities (30 hours).

Each student works on a distinct piece of research work within the main theme of the team project itself. The initial planning and literature research are therefore largely common to all team members and at the end of the project the individual results of each student need to be evaluated in the context of the overall team aims. However, for the majority of the time each student is working individually and this balance is reflected in the assessment strategy for the module.
<table>
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<tr>
<th>Week</th>
<th>Activities</th>
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| 1    | **Semester 1**  
     | INDUCTION meeting on **Monday 29th September** will introduce the team project. **All students must attend** |
| 2    | Contact your supervisor to arrange the *first project meeting* and schedule a suitable time for regular meetings. Literature & ethics workshop with CDA & CCE (Monday pm). **All students must attend** |
| 3    | Ensure you have agreed clear aims and objectives with your supervisor. Remember to complete a risk assessment/COSHh for all experimental work. |
| 4    | 2nd meeting with supervisor  
     | Laboratory work begins |
| 5    | |
| 6    | |
| 7    | 3rd meeting with supervisor |
| 8    | **DEADLINE: WEDNESDAY 19th November. Submit team-based written introduction and literature review plus brief individual project plans.** |
| 9    | First assessed interview (15%) |
| 10   | 4th meeting with supervisor (feedback from interviews) |
| 11   | Last week of semester 1 |
| 12   | |
| 1    | **Semester 2**  
     | 5th meeting with supervisor |
| 2    | |
| 3    | |
| 4    | 6th meeting with supervisor |
| 5    | |
| 6    | **DEADLINE: Wednesday 4th March. Submit individual written draft account of your results and their initial interpretation** |
| 7    | Second assessed interview (15%) |
| 8    | Final meeting with supervisor; (feedback from interviews) |
| 9    | |
| 10   | |
| 11   | **DEADLINE: Monday 27th April 2015. Submit individual project report (60%), laboratory diary and peer assessment form (10%)** |
ASSESSMENT

Each student will submit an **INDIVIDUAL REPORT** to be structured as described in detail on page 5. There will also be elements of continuous assessment through the cross-examination interviews and completion of the laboratory diary and peer assessment. Overall your individual performance, will contribute around 80-90% of your marks. The remaining 10-20% are assigned to the team as a whole.

Prior to each assessed interview you should submit a written document which will be used to form the basis of discussion at the cross-examination session:

**Interview 1:**
You will submit a **team** report comprising an introduction to the project and its aims, incorporating a literature review. This will also form the basis of the first section in your final report. It should be between 1000 – 2000 words in length. You can include sub-headings in this section, example below, or other suitable headings.

- Introduction
- Background
- Literature review
- Project aims

You will be cross examined on some of the information contained in this report, plus your understanding of the project aims, your experimental plan and instrumental techniques you intend to use.

**NB. The written submission is marked and contributes one third of the marks for this piece of assessment.** Of the 15%, 5% is a group mark for the written work and 10% is an individual mark based on your response to questioning. **You need to submit 2 copies of each report element into the submission box by 4 pm on Wednesday 19th November.**

**Interview 2:**
You will each submit an **individual** report comprising all your own experimental results together with appropriate data analysis/interpretation, and some reference to the group results as a whole. This will form the basis for the results section of your final report, and should be around 1600 words in length. You will be cross examined on your own results, what you have found out, any improvements, and how your results reflect within the overall context and aims of the project.

**NB. This is a draft results section and amendments can be made on the basis of feedback or additional results which are acquired, however you should be aware that this draft is marked and contributes 1 third of the marks for this piece of assessment.** Of the 15%, 5% is an individual mark for the written submission and 10% is an individual mark based on your response to questioning. **You need to submit 2 copies of this individual report into the submission box by 4 pm on Wednesday 4th March.**
<table>
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<th>Assessment Component</th>
<th>Description</th>
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<tr>
<td>Cross-Examination Interview 1 (15%)</td>
<td>Each team will be interviewed by their supervisor and a second assessor in week 9 (semester 1). An individual total mark will be assigned based on both your team-based written submission, and your own scientific understanding of the project – your response to questions. <em>(5% is a group mark for the written work and 10% is an individual mark based on your response to questioning.)</em></td>
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<td>Cross-Examination Interview 2 (15%)</td>
<td>Each team member will be interviewed by their supervisor and a second assessor in week 7 (semester 2). An individual mark will be assigned based on your scientific understanding of the project, quality of experimental work and the data acquired. You will submit an individually written account of your results and their initial interpretation before this interview. <em>(5% is an individual mark for the written submission and 10% is an individual mark based on your response to questioning.)</em></td>
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<tr>
<td>Laboratory Performance (10%)</td>
<td>A detailed lab diary should be maintained <em>week by week</em>, and will be assessed on an individual basis. Periodic checks of the diary and signatures from your supervisor and/or technical staff will ensure it is written-up week-on-week, not at project completion. It will be submitted for assessment at the same time as the project report. Lab diaries assess your ability to take contemporaneous notes and should not be written up at the end of the year. <strong>NB. A lab diary which is ‘re-written’ at the end of the year will incur a capped mark of 40% for this section of the assessment.</strong> Each student will also be asked to complete a peer assessment of their team members which will be included in the overall mark for this section.</td>
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<tr>
<td>Final Project Report (60%)</td>
<td>The individual report will be submitted on <strong>Monday 27th April 2015</strong> and will comprise:</td>
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<td></td>
<td><strong>Abstract</strong> (~200 words)</td>
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<tr>
<td></td>
<td><strong>introduction, literature review and references</strong> (~1200 words+ references)</td>
</tr>
<tr>
<td></td>
<td><strong>Experimental</strong> (~800 words)</td>
</tr>
<tr>
<td></td>
<td><strong>Results</strong> (~1600 words)</td>
</tr>
<tr>
<td></td>
<td><strong>Discussion</strong> (~1000 words)</td>
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<tr>
<td></td>
<td><strong>Conclusion and future work</strong> (~200 words)</td>
</tr>
</tbody>
</table>

The introduction and literature review will be based on your submission in week 8 of the 1st semester. The results section will be based on your submission in week 6 of the 2nd semester. The references should be presented at the end of the report.

The **word count** of the final report is ~5000 words +/- 10%. Any reports significantly over this may incur a penalty.

All project work will be independently double marked and then the two examiners will come to an agreed mark.
FURTHER DETAIL AND SPECIFICATION FOR THE PROJECT REPORT

The marking guidelines for each assessment can be found on Blackboard in the assessment folder.

The individual report and lab book needs to be submitted to the school office before or on:

**Monday 27th April 2015 by 4pm**

The report should be written with 1.5 line spacing and standard margins. You should submit 2 bound copies of your report. Note: you are able to have one copy back after the assessment period is complete.

NOTES ON EACH SECTION

The **Abstract** should be written last and be around 200 words in length.

The **Introduction** (~1200 words) should include the aims of the project clearly stated, together with any background to the project and the literature review. This will be based on the team work you submitted in week 8 of semester 1.

The **Experimental** (~800 words) section should include detail on all the experimental techniques you have used and any preparative methods needed. The methods described should be clear and detailed, ideally someone should be able to pick up your report and reproduce your results by following the same procedure. Diagrams may be required. The make and model of any analytical equipment is required.

The **Results** (~1600 words) will describe the experimental data acquired and any data analysis undertaken together with an initial interpretation of those results. It may involve tables, graphs, diagrams, spectra, images etc. In most cases it is expected that the work in this section will be quite separate for each student though there may be some projects where there is some overlap between students.

In the **Discussion** (and then Conclusion) (~1200 words) section you should discuss and explain the results of your individual work in broader context and evaluate them against the project aims. You should also evaluate them in the context of the work of the rest of the team and the aims of the project as whole. This section is each student’s view of what the project has achieved and how successful the project has been in meeting its aims – what have your results actually shown you? The majority of this section will be based on your individual work but may use material from the other team members in parts. You should include any future work in the discussion.

Some students may wish to combine **Results** and **Discussion** section and then have a separate **Conclusion**.

Note that all work should be referenced where appropriate. This is discussed in the following section.
REFERENCING

For the purposes of this project report you should list your references (papers, books or web-sites referred to in the text) at the end of the report. These should be linked to an appropriate point in the text, preferably using a sequential reference number.

For example... in the text:

“Over recent years, attention has been given to the evaporation and diffusion of solvents, particularly phenoxyethanol, from the ink-line, as a function of time [16]. Combining weighing using a microbalance and GC-MS analysis revealed that solvent loss from the ink-line tailed off after times in the range from 10 days to 2 weeks [17]. These effects were found to depend significantly on the formulation of the ink and thus inks could be classified into “slow-ageing” and “fast-ageing” types [18].”

These three references (16, 17 and 18) which are relevant to the points in the text indicated by the reference numbers are then given at the end of the paper as:


The exact format (e.g. punctuation etc.) may vary between journals that you look at. However you should ensure that your reference list follows this one format in most respects and must be consistent throughout.

Guidelines on referencing may be found at the websites of many journals for example see the following sites:

http://www.elsevier.com/wps/find/journaldescription.cws_home/505512/authorinstructions#68000
http://www.rsc.org/Publishing/ReSourCe/AuthorGuidelines/ArticleLayout/sect4.asp

Common failings in student referencing include:

- Reference numbers do not link to text
- Order of references is incorrect
- Over-enthusiastic referencing of “common knowledge”, particularly to textbooks
- Over-use of websites
- Inconsistent presentation of references
- Lack of references (lack of reading?)
- Missing information in the reference
- Confusion between references and bibliography

If a reference is not available to the university an inter-library loan may be possible. For further information about this you should contact Leanne Jones.
PLAGIARISM

You will be given a presentation on plagiarism and how to avoid it, at the induction session. You will be asked to sign that you have attended this event.

You are all responsible for ensuring plagiarism is not present in any work submitted in your name for assessment. This means that in the collectively written sections, you must each ensure that none of the contributions from your team colleagues contains any deliberate or inadvertent plagiarism. e.g. from web sources or any other origin. Always cite and reference any work, data, comments or image which has originated from elsewhere.

The University Regulations define plagiarism as:

... an academic malpractice. Plagiarism is the use of the ideas, words or findings of others without acknowledging them as such. To plagiarise is to give the impression that the student has written, thought or discovered something that he or she has in fact borrowed from someone else without acknowledging this in an appropriate manner.

You are reminded that the regulations governing plagiarism are at:

http://www.keele.ac.uk/regulations/regulation8/

SUPERVISION

It is expected that each project supervisor will meet with their project group at regular intervals throughout the year. An example meeting frequency is suggested in the above timetable (page 2). A record of the outcomes of these meetings should be recorded by each team member so they have a clear project direction. Please ask your project supervisor if you are unsure of anything.

It is expected that each supervisor will read one draft report for each individual for each submission deadline. Suggestions to improve the piece of work can be written onto the draft or given orally. To enable individual supervisors to fully appraise the draft it should be given to them at least one week before the deadline. Drafts received after this may receive comments at the supervisors’ discretion.

Any issues with supervision should be discussed with your individual project supervisors in the first instance. Additional guidance can also be sort from the project module tutor.

STUDENT FEEDBACK

We welcome informal feedback and suggestions from all students during the semester. You can also feed your comments back to us through your student representatives (Stars) at the Student-Staff-Liaison Committee (SSLC) meetings. Towards the end of the module, you will be asked to complete a short questionnaire giving your views of the module delivery. This is an important factor in informing our future development of this module and your considered views are greatly appreciated by the staff.
ETHICAL APPROVAL

Ethics is absolutely paramount in all scientific disciplines and that is certainly true in Forensic Science. Forensic practitioners are trained to follow strict ethical guidelines. As such each 3rd year forensic science student will be required to fill in a form looking into the ethics of the project; this must be completed before any practical work is undertaken. This form will need to be signed and attached into the appendix of the final report.

The form is available in the 'Ethics' folder on the module web page that can be found on Blackboard.

Moreover, an introductory lecture on ethics will be given to all students on Monday Week 2. During interviews scheduled in the 1st and 2nd semester, questions on ethics may be asked by the assessors to the project students, as ethics must be fully integrated and thought through in each project.

For projects involving either human tissues or body fluids, for which ethical behaviour from the researchers is absolutely crucial, students will have to ask for ethical approval before being allowed to start the project. Once the application is approved by the School Committee, it should be included in the final report (this form can also be found on the module web page). However, if ethical approval was already sought and granted for the same project, there is no need to apply again. Yet, the students will still be required to access the approval form and include it at the start of their final report.

Reading List on Ethics

1- Ethics in Forensic Science: Professional Standards for the Practice of Criminalistics
2001
Peter D. Barnett (Author)
Protocols in Forensic Science Series

2- Ethics and the practice of forensic science
2010
Robin T. Bowen
CRC Press

3- Ethics in Forensic Science
2012
J.C. Upshaw Downs Dr. (Editor),
Anjali Ranade Swienton (Editor)
Elsevier