

School of Computer Science

Second Year Laboratory Manual

2017-2018

If you need a copy of this manual in a different format (for example large print) please contact Andy Carpenter (Andy.Carpenter@manchester.ac.uk)

“Copying undermines everyone’s efforts”

Welcome

This manual tells you about the second year laboratories. Some of you will have done laboratory exercises here in your first year, so you will be reasonably familiar with much of this information.

The main thing to remember is that your laboratory exercises are worth far more to you than just the marks you get for them; you actually get to put into practice what you see in the rest of your course. You also get a chance to experience the so-called “real-world” for which so many students hunger; you must manage meeting your deadlines, prioritise your workload, work with other students and laboratory staff, solve the problem of why “it worked earlier” but it is now mysteriously broken, and so on. It is all there for you to experience.

I do hope that you enjoy doing your Second Year laboratory exercises.

Andy Carpenter,

Second Year Laboratory Manager

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1 Academic Malpractice

Call it what you will (cheating, copying, plagiarism, collusion, working too closely together, getting too much help, submitting work that is not your own), academic malpractice is so important that it is the first topic in this manual.

You should have read and understood the University policy on academic malpractice, which includes plagiarism and collusion (<http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=639>). The University also has guidance for students on academic malpractice (<http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=2870>). The School's Undergraduate Handbook (<http://studentnet.cs.manchester.ac.uk/ugt/handbook>) with which you are also expected to be familiar includes a section on academic malpractice. This section gives the implications of this policy in relation to your second year laboratory exercises.

In all of the activities that you do, we encouraged you to cooperate with others to help each other to understand your coursework. Here the operative word is *help*. If your work, or even part of your work, ends up being a copy¹ then the cooperation has gone beyond helping. If this happens to you, it usually means that you have not understood something. As with the first year, one useful guide to help distinguish between help and copying is that:

No part of your code, or your pseudo-code, should be made available in any form whatsoever to any other student. Equally, you should not have access of any form of someone else's code.

You should strictly limit any discussion to far more general or higher-level issues related to a problem.

Any work that you submit for assessment may be manually or mechanically scrutinised for evidence of academic malpractice. Any piece of work suspected to be the result of academic malpractice will be investigated. If this investigation results in hearing where academic malpractice is deemed to have been committed, the work will be penalised. Resubmission of penalised work is not allowed. Thus, it is not possible to improve the mark for any piece of work that that results from academic malpractice.

The School will normally deal with first offences of academic malpractice; second offences are automatically referred to Faculty. As all offences committed while studying for a degree programme are considered, an offence in the first year will mean that an offence in the second year is referred to Faculty. The penalty varies but possibilities include zeroing the mark for the piece of your work in which academic malpractice was detected and zeroing all of your coursework marks for the associated course unit. As all of the second year marks count towards your final degree grade, any penalty will affect your final degree. Having your marks zeroed can prevent you from passing credits, which can affect the degree programme that you are registered on. Where the malpractice is collusion (working too closely together), all of the students involved are likely to have the same penalty applied.

¹ Of course, by copy, we mean something more than merely a character-by-character reproduction; 'structural copy' is a better term, where the structure of parts of the program is essentially the same.

2 Laboratory Staff

In general, each laboratory session will have a Laboratory Supervisor who has overall responsibility for the running of the laboratory session; this will be a course unit lecturer. There will also be Teaching Assistants (TAs) who will undertake marking and provide assistance during the session.

If you have a data record related problem, for example, you were absent then you should discuss in your next session for the course unit this with the Laboratory Supervisor and not with a TA.

2.1 Laboratory Supervisor

The Laboratory Supervisor will take attendance and will resolve problems such as Blackboard and ARCADE irregularities.

2.2 Teaching Assistants

A TA's role is to:

1. *help* students to understand and assimilate the material in a given session
2. give feedback to students on their work
3. do marking as appropriate
4. give general advice on sensible working practices and time management
5. perform 1-4 above according to individual class logistics, as agreed with the Laboratory Supervisor

You must treat TAs as human beings, rather than objects that come between you and the full marks (we expect your answer to be the best you can do in the time available, not a perfect solution). They have the extremely difficult job of awarding fair marks for your work and attempting to provide some feedback. It is sometimes hard for them to explain exactly why your submission may, on this occasion, lack complete perfection. They also have rather a lot of work to mark in a short time; so, please do not needlessly delay them.

3 Managing Your Time

As far as laboratory work, things that go wrong for students in the second year are: a) putting too little effort into doing the assignments, and b) spending too much time on them. This is why time management is included as a learning outcome for your laboratories.

3.1 Too Little Effort

Spending too little time doing your laboratory assignments will mean that you do not complete them and do not gain all of the marks that you could have. One of the major causes of this is not starting work on an assignment until just before it is due. To help you reduce the effects of this, most of the course units have deadlines spread throughout a semester.

3.2 Too Much Effort

In general, laboratory assignments contribute only about 20-30% of the total mark for a course unit (the actual contribution is stated in the course unit syllabus page). Therefore, it is catastrophic to spend all your time doing the laboratory exercises, and little on understanding lecture material and other academic studies. As the assignments are something concrete you can work on now and examinations usually feel to be a long time away, it is hard not to feel that they are the most

important thing. However, if you want good examination results, you must put revision effort in during the whole semester.

We cannot stop you from spending 24 hours a day working on laboratory assignments, but if you find yourself spending more than four or five hours a day on these exercises, you should ask yourself if you are using your time wisely. It is particularly wrong to spend significant amounts of time attempting to produce perfect answers. In practice, your answers will not be perfect, and you would have gained more marks by understanding lecture material and achieving a better performance in your examinations.

3.3 The Correct Amount of Effort

For each assignment, the staff responsible for it decide how many sessions are needed to complete it. They will include some safety margin in their calculation, but they will expect you to do preparation and some work outside of the scheduled sessions; remember for each hour of scheduled time you are expected to spend a second hour on self-study.

Our advice is that you should aim to have (almost) completed an assignment *before* its final session. Doing this means that you know that you can complete it and submit it during the session. If you are frequently missing deadlines then you should reconsider your approach to time management and multi-tasking. One way to avoid missing deadlines is to make an *early start* on your laboratory assignments, i.e. in week one.

You should view your scheduled sessions as a time for having your work marked, and an opportunity to get help and advice on problems that you have already discovered. It is wrong to think of them as the time at which you start to work on an assignment.

As we said already, part of the skill of successfully completing the laboratory is to work on several assignments at once, to meet multiple deadlines. You should guard against concentrating on one exercise at the expense of another. The ability to work to multiple deadlines is a very useful 'transferable skill' and your development of it is one of the aims of the laboratory. We actually think it is quite similar to what goes on in a real-life work environment and so will be useful to you in your future career. The use of deadlines spread throughout the semester is our contribution to you learning to manage your time.

At the end of the day, though, the most important thing is for you to take a balanced approach to your laboratory work, and to be sensible about the amount of effort you spend on it.

3.4 When Things Going Wrong

You can expect to find the assignments difficult, or at least time-consuming. The laboratory is organised in a way that is intended to be fair and to help everyone complete the work they need to do. However, if things do go wrong, we have a number of ways to help. As is always the case, the first thing is not to keep problems to yourself; please speak to someone. This could be your personal tutor, your year or programme tutor (see list of tutors), me (my office is Kilburn 2.119, or email for an appointment) or the Head of the Undergraduate School (email for an appointment). If emailing someone for an appointment, please include a list of times that you are available.

4 Laboratory Management

If you were a first year student in this School, then you will already be familiar with our laboratory management processes. However, if you are new to the School, or you need to remind yourself, the following sections contain a brief overview of how things work.

4.1 Deadlines and Late Flags

At the end of each assignment, which may occupy several scheduled sessions, there is a deadline by which time you should have completed and submitted your work. If you submit your work after its deadline, your work will be considered “*Late*”. Up to the marking deadline, late work will be marked; however, any mark for late work will only contribute towards ensuring that you do not fail the coursework component of a course unit.

If there is only one deadline for the coursework associated with a course unit, then you should take particular care to plan your work *throughout* the semester, rather than leave it all to the last minute.

4.2 Missed Laboratory Sessions

Occasionally due to illness, you may miss a single laboratory session. If this happens, you should still complete and submit your work before the deadline for the assignment. If your illness is sufficiently long that you miss a laboratory session and an associated coursework submission deadline, you will need to submit a mitigating circumstances form. Without the submission of this form, your work will be considered late.

4.3 Expected Absences

Occasionally you may know in advance that you will not be able to attend a laboratory session or are away at the time of a deadline; for example, because you have a job interview or are attending a hackathon. In these circumstances, you must still complete and submit your assignment before the deadline.

4.4 Extended Absence

If you are ill for an extended period, or otherwise unable to attend laboratory sessions, and you miss two consecutive sessions for a course unit, you must see your year or programme tutor and submit a mitigating circumstances form. Your year/programme tutor will discuss your options and agree a work plan for the rest of the semester.

4.5 Assignment Weighting

The information for a course unit will indicate weighting for individual assignments. These weighting determine how marks are combined to give the final coursework mark for that course unit. For example, consider a course unit that has two assignments one that is marked out of 10 with a weighting of one and another that is marked out of 20 also with a weighting of one. In this case, the two exercises are worth the same fraction (i.e. 50%) of the final mark even though one is marked out of 10 and the other is marked out of 20.

For course units using ARCADE, the ARCADE information shows the out of mark and weight for each assignment.

5 Marks: How to Get Them

For all course units, the first stage of getting each of your assignments assessed is some form of submission process. You must read the specific instructions for each exercise very carefully to determine exactly what you have to do. For each assignment that you submit, you will receive a mark and feedback. You should not underestimate the usefulness of your feedback.

For some course units feedback and marks come from a face-to-face process, in which the marker discusses your work with you. Other course units assess your work without you present and return your feedback and marks to you later. Whatever process is used, your mark will be entered into Blackboard or the ARCADE system. **We expect you to regularly check your Blackboard and ARCADE records (see section 7.1 for details of using the ARCADE client).**

Here is a summary of what you can do to ensure that all of your marks are recorded:

- Follow the submission instructions for each assignment and ensure that you meet the deadline, use the correct submission process and submit your work to the correct place.
- For course units that have hardcopy marking sheets generated by the labprint command (see page 12). Ensure that the TA has written your mark on your marking sheet, or script, and signed and dated it too.
- Work that you have had marked and returned to you should be kept in a safe place; it is your insurance in the unlikely event that we lose information.
- Keep (electronic and paper) copies of your programs, and the marked listings where you have them.
- Sort out problems with your Blackboard and ARCADE records as soon as you spot them.

These precautions are important. If you have no evidence that work was submitted and marked, we are very reluctant to re-award marks for it.

5.1 Submission and Face-to-Face Marking Deadlines

For each semester, there are cut-off deadlines for assignment submission and face-to-face marking. Work not submitted or marked by these deadlines will remain unmarked during the normal academic year. These deadlines are:

- **Semester one assignment submission deadline:** 9am Monday of week one of semester two
- **Semester one face-to-face marking deadline:** 5pm Friday of week two of semester two
- **Semester two assignment submission deadline:** 5pm Monday of week 13 of semester two
- **Semester two face-to-face marking deadline:** 5pm end of University examination period

Students with resits will be able to get assignments for the course units that they are resitting marked during the resit period.

5.2 Face-to-Face Feedback and Marking

5.2.1 Submission

For assignments using face-to-face marking your work is submitted using the `submit` command. When you run this command, it sends a copy of your work to the server. It also records the time and uses this to determine if you have met the deadline. Thus, you should run this command as soon as

you have completed an assignment. A common mistake is to run `submit` only when you are about to have your work marked. If this is after the deadline, your work will be flagged as late.

When using this submission process, for each exercise there is an associated directory that must contain your work. The name of this directory reflects the course unit and exercise number, e.g. the work for exercise one of COMP25111 must be done in the directory `~/COMP25111/ex1`. You must be in this directory when you run the submission related commands.

If you just want to check for any differences between your work in the working directory and what you have previously submitted, use the command `submit-diff`. If you change your work after submitting it and wish to resubmit it, use the `submit-again` command. Not only does this submit your updated work, it also records a new completion time. Thus, running this command could make your work late.

For some assignments, you will be required to generate a hardcopy marking scheme and printout of your code. To do this, simply use the command `labprint` while in the exercise directory and collect the hardcopy from the printers. It is wise to go immediately to the printer to collect your hardcopy, otherwise somebody else might steal it.

5.2.2 Marking

Marking occurs during a one-to-one session with a TA. You should get your work marked in the first laboratory session after the deadline for the associated course unit. It is important that you do not work on an assignment after its deadline, if you do this will be detected during your one-to-one session and you will have to submit it again which will result in it being late.

During your one-to-one session, the TA will ask you to run `submit-diff`. This will compare the version of your work in your working directory with the version of the server. If there are significant differences, the TA will ask you to run `submit-again` command (which will make your work late). He or she will then go through the work with you to give you verbal and/or written feedback on it, and your mark. The TA will also record the mark using the Benchmark system that runs on the tablet computer that they are carrying. You will be able to confirm the mark by looking at your ARCADE record.

5.3 Non Face-to-Face Feedback and Marking

You should follow the submission details given in each assignments description; this will probably be a Blackboard submission. Within a couple of weeks, a TA will look at your submission and record feedback and a mark. This will be visible to you in the system used for submission, e.g. Blackboard. If you are unclear about your feedback, talk to the laboratory supervisor in your next laboratory session for the course unit.

6 The Laboratory Timetable

It is a very complex and time-consuming task to allocate up to 200 students to laboratory groups, according to the different options chosen by each student and satisfying various constraints. You can help with this process a lot by ensuring that you attend the laboratory sessions to which you are allocated. Your myManchester timetable will show the times of your sessions.

6.1 Laboratory Groups

Unlike in the first year, laboratory groups are associated with individual course units, not the entire year. Thus, you are likely to be in a different laboratory groups for different course units.

6.2 Weeks A and B

For some course units, there are weekly laboratory sessions. Whereas for other course units sessions occur fortnightly and some take place in 'Week A' and others in 'Week B' (Reading Week is not counted as a Week A or B).

6.3 Marking Sessions

For course units that use face-to-face marking, after the last scheduled session there can be work that has not been marked. To cope with this situation, the course unit leader will publicise a Marking session during which you can get unmarked work marked. As these sessions are after the deadlines and purely for assessment, no attendance will be taken and no help will be available.

For first semester course units, the Marking sessions happen during the first week of second semester. For second semester course units, marking sessions occur during the first week after lectures finish and before any examinations are scheduled. Different course units may schedule marking sessions at the same time. If you have work to be marked in both course units, you need to ensure that you attend both sessions.

7 Your ARCADE Record

As you can access your ARCADE record and inspect all of your ARCADE data on a daily basis, it is your responsibility to ensure that the data is correct.

7.1 Access

In order to use the ARCADE client to inspect your ARCADE data, simply type (on a Linux machine in the School's domain):

```
/opt/teaching/bin/arcade
```

then follow the instructions to invoke the required tool.

If you believe that your information is incorrect, it is up to you to get any problem resolved as soon as you can. The longer you leave it, the more difficult it will be to get fixed. However, you also need to use some sense and leave a reasonable amount of time before doing anything --- for example, it usually takes a few days for the data from a laboratory session to be entered into the on-line system. Again, if you email a member of laboratory staff, then please wait a reasonable time² for a response, before you politely follow it up.

7.2 My Laboratory Email Says I've Done/Not Done... and It's Not True!

It would help us very much if you would just point this out in the next laboratory session you have for that course unit. Corrections need to be put in the Laboratory folders, so the lab is the best time to do it. If the same error crops up over and over again, despite you trying to get it fixed, please

² I once had a student email me late on a Saturday, and then send another message on the Monday morning complaining that I had not responded. Do you think that was the best or most reasonable approach to take?

email me (Andy.Carpenter@manchester.ac.uk) with details and I will find out why the laboratory staff have been unable to get the problem corrected

8 Noise and Mobile Telephones

One of the biggest problems is the level of noise in laboratories, which many students can find very disruptive. At all times, you must avoid unnecessary noise such as loud conversations, tapping on tables and externally audible personal headphones. In particular, the use of mobile telephones in laboratory rooms is *totally banned*. Your phone *must* be switched off or set to non-audible ringing; and if you do receive a call, you must leave the room *before* you answer it. We get so many complaints about phones, that we have no choice but to take drastic action against anyone who persistently ignores these requirements.

9 Help

If you have a problem with your laboratories, then you need to solve it as soon as you can; it is a lot easier that way. Your first step should be to read through this manual.

The records stored in the ARCADE database reflect what course unit choices you have entered into the Campus Solutions System. Your course unit choice can only be updated via Campus Solutions. Information on your laboratory groups is managed by the School. When you change your course units, your group allocation will be automatically updated within two working days.

9.1 Problems that a Laboratory Supervisor Can Usually Resolve

You should try to sort out the following problems with the individual laboratory supervisor:

- if you believe there is a mistake in data that has been entered in the laboratory record; for example, if you think you attended, or had an exercise marked, and you have received an automated email message from ARCADE saying otherwise. If this happens to you, then attempt to sort it out at the next laboratory session for the affected course unit. If you leave it longer than this then it will be more difficult to resolve.

9.2 Problems that Only the Laboratory Manager Can Resolve

You will need to contact the Laboratory Manager via email (Andy.Carpenter@manchester.ac.uk) to resolve the following:

- if two working days after making a change in Campus Solutions, you need to be in a different lab group because you have a clash. Please give details of why there is a clash and some suggestions as to which lab group allocation would avoid it.
- if two working days after making a change in Campus Solutions, your name is not listed in the correct lab group in the Laboratory Book

9.3 Problems that Only your Year Tutor Can Resolve

If you have been ill for a longer period (or have some other circumstances that mean you are not able to complete much of the laboratory work in the usual way, you should contact your year tutor to discuss your circumstances.

9.4 Problems that Only the School's Student Support Office Can Resolve

If after the first two weeks of a semester your course units recorded in Campus Solutions are not correct, you must contact the School's Student Support Office (sso@cs.man.ac.uk). Give them details of what you believe is incorrect in Campus Solutions and they will investigate. During the first two weeks of a semester, you can correct issues yourself using Campus Solutions.