# FOR212: SKILLS CHECKLIST 2021_22

Name and Student number: Lucía Lopez 2001133

**You are expected to attend ALL lab sessions and fully engage with them.**

| | Practical Number | | | | |
|---|---|---|---|---|---|
| **Key Skills** | 1 | 2 | 3 | 4 | 5 |
| 1. Health & Safety identifying and using appropriate PPE | C FB | C FB | X SB A | X SB A | C FB |
| 2. Health & Safety (WORKING SAFELY) | C FB | C FB | X SB A | X SB A | C FB |
| 3. Risk assessment (understanding/observation of instructions) | C FB | C FB | X SB A | X SB A | C FB |
| 4. Use of automatic pipettes | | | | X SB A | |
| 5. Weighing out solids for making solutions | C FB | | X SB A | X SB A | |
| 6. Appropriate use of glassware for volume measurement | C FB | C FB | X SB A | X SB A | C FB |
| 7. Preparing solutions: dilutions and dilution factors | C FB | C FB | X SB A | C FB | C FB |
| 8. Demonstrate accurate results (within 1 SD of true result) | C FB | C FB | X SB A | C FB | C FB |
| 9. Correct calculations and understanding of precision and accuracy and proper use of units | C FB | C FB | X SB A | C FB | C FB |
| 10. Making scientific observations, and recording results | C FB | C FB | X SB A | C FB | C FB |
| 11. Good record keeping | C FB | I FB | X SB A | C FB | C FB |
| 12. Contemporaneous Notes. Lab book signed at the end of every session | C FB | I FB | X SB A | C FB | C FB |

This sheet should be completed in stages as you demonstrate your achievement of the skills within the module and signed off by any lecturer/demonstrator at the end of any appropriate laboratory session following a brief discussion of your performance. **It is your responsibility** to present the checklist, skills cannot be signed off retrospectively.

**This sheet will need to be attached to your lab notebook as part of Unit 1.**

An explanation of the Key Skills and how you can demonstrate achievement of them can be found on the following page. Please read the information carefully. If you have any doubts or queries, please ask the module leader, Dr Keith Sturrock k.sturrock@abertay.ac.uk, or consult one of the lab demonstrators during a lab session.

Clearly it would be unrealistic for you to be fully competent in all of the above in week 1. We anticipate that you will be able to demonstrate increasing levels of competence as we progress through the module. We will indicate an agreed level of competence in the following way:

Each week the boxes above will be initialed by the demonstrator and the following added

**E** - **E**ngagement is demonstrated but it is clear that more practice is definitely required to achieve competence
**I** - it is clear that **I**mprovement is being made but it is not yet clear that competence is fully achieved
**C** - it is clear that a high degree of **C**ompetence has been demonstrated, achieved and maintained

There are several opportunities available for most skills to be practiced, and competence to be demonstrated. However, not all skills can be practiced more than once. So, to achieve a **pass in this part of Unit 1**, there must be competence demonstrated (**C**) and maintained, in a minimum of 8 of the 12 listed above, with evidence of developing skill in the other areas.

| Key Skills | Commentary/ Guidance |
|---|---|
| 1. Health & Safety identifying and using appropriate PPE | Wearing lab coat and safety glasses at all times in the lab. Use of gloves and/ or other PPE as required. |
| 2. Health & Safety (WORKING SAFELY) | Personal conduct. Taking the health and safety of others into consideration while planning and conducting experiments. Following general guidance. e.g. no eating or drinking in the lab. |
| 3. Risk assessment (understanding/observation of instructions) | Listening to H&S briefing and knowing when to take additional measures such as wearing gloves when handling particular chemicals. The appropriate use of a fumecupboard for specified tasks |
| 4. Use of automatic pipettes | This relates to only one of the experiments but is important. The correct choice of pipette for the volume required. Correct setting of the scale on the pipette for a particular volume. Correct operation of the pipette. Understanding the limitations of automatic pipettes |
| 5. Weighing out solids for making solutions | Correct choice of balance. Correct weighing process. Diligence in weighing. Keeping balance and surrounding bench free from spillages. proper recording of data (including units) |
| 6. Appropriate use of glassware for volume measurement | Understanding precision in measuring volumes (to how many decimal places). Selection of appropriate measuring tool. Correct operation of the measuring tool. Avoidance of spillages. Proper use of the meniscus in volumetric glassware. |
| 7. Preparing solutions: dilutions and dilution factors | Correct choice of volumetric flasks. Correct choice of pipettes. Correct operation of both. Understanding of chosen dilution strategy. Demonstration of how an overall dilution factor is achieved (including units). |
| 8. Demonstrate accurate results (within 1 SD of true result) | This will depend on the experiment but you should be able to show this, or at least explain why your result falls outside 1 SD, by identifying where the uncertainty in measurement may lie (including units). |
| 9. Correct calculation and understanding of precision and accuracy | You must present all calculations in your lab notebook. They should be clear and flow logically. Units **MUST** be used in all stages of every calculation. You must use the correct number of significant figures and decimal places in your answers. |
| 10. Making scientific observations, and recording results | It is essential that you understand the experiments that you are doing. You must be able to produce a record of the experiment; raw data, calculations, and final results. You must be able to explain the findings you record. You should be able to relate your findings to scientific theory. |
| 11. Good record keeping | Your lab notebook is not expected to neat and tidy but it must be clear, logically ordered and contain true information. Mistakes must be identified and scored out with a single line and your initials and the date written next to the line. Do not do anything that will hide the mistake (tipex for example), it may not be a mistake! |
| 12. Contemporaneous Notes. Lab book signed at the end of every session | It is important that you have more in your lab notebook than just a collection of data and calculations. It is important to record important contextualising information. Why am I doing this part of the experiment? What do I expect to find? How does this relate to the next part of the experiment? Has anything unusual happened? How do I explain it? These little bits of information will be invaluable especially if; 1) you have to explain your experiment to someone and 2) if you have to write a lab report. It doesn't have to be extensive. Short is better. It must however be accurate and explanatory. There isn't really a right or wrong way to do this. There are however good and bad ways of doing it. You will learn this as you progress. |