# Practical Skills Tracking Checklist Set-up and Implementation

A Guide for Course Coordinators

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This guide aims to support staff in implementation of a checklist in Moodle to document student attainment of practical skills during in-class laboratory sessions. In addition to recording these skills, we highly recommend that formative feedback is provided to students in order to improve their competency with these skills. The Checklist in Moodle provides a record of student attainment, while oral feedback and reassessments by staff on student competency demonstrates attainment. A student can be reassessed as many times as needed during a session or, if still needed, in subsequent sessions later that Semester or in following years.

### Section 1. Frequently Asked Questions on Practical Skills Tracking at the University of Glasgow.

**What are essential and desirable skills?**

When deciding what essential skills to include in the practical skills tracking checklist, think about the following:

1. what are the practical skills that graduates from your degree should be competent in
2. what are the logistics of assessing the skills- each student should have multiple opportunities for practice and reassessment, which can occur over subsequent years (I.e. Level 2 and 3)
3. is this a specific implementation of a more general skill? If so, use the more general term to cover multiple opportunities that it is offered.

As an example, Table 1 shows the essential skills being assessed in 2D Microbiology and Immunology (BIOL2044) and when assessment opportunities occur. For sterile pipetting and plating out bacteria, the desirable skills (not shown) are the outcomes of the essential skill techniques i.e. uncontaminated samples and single colonies obtained, respectively, the following week. Desirable skills added to the checklist are still recorded by staff & GTAs but they do not count to the % completion.

Table 1: Practical Skills Tracking for Microbiology and Immunology 2D (BIOL2044)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Sterile pipetting** | **Microscope setup** | **Plating out bacteria** |
| Lab 1 | Given feedback on technique | Given feedback on technique | - |
| Lab 2 |  | - | Given feedback on technique |
| Lab 3 | - | Given feedback & signed-off if competent | Given feedback & signed-off if competent |
| Lab 4 | Given feedback & signed-off if competent | Given feedback & signed-off if competent | Given feedback & signed-off if competent |
| Lab 5 | Given feedback & signed-off if competent | Given feedback & signed-off if competent | Given feedback & signed-off if competent |

Note: A table similar to Table 1 should be added to the course lab manuals and/or Moodle sites along with a description of the assessment criteria for determining competency. This also can be added to any introductory powerpoints at the start of a lab session, and the staff & GTAs should be briefed about this list in advance of the session (this is what they should give feedback on).

#### Skill 1 - Sterile Pipetting

Lab 1: Sterile pipetting

You will pipette nutrient broth into sterile empty bottles. Demonstrators will observe you pipetting the positive control & and give feedback on your sterile technique.

Demonstrators will check for:

* + - A clean work area
    - Correct use of a Bunsen burner
    - Correct handling of the bijoux lid
    - Rapid transfer technique & fresh tips used for each sample
    - Avoiding contact of the pipette and any contaminated surfaces

See full description of proper technique on Page 7 section ‘Sterile pipetting”.

Labs 4 & 5 will give you an opportunity to get signed off for this technique.

### What is required to set this up in Moodle?

* A list of Essential skills (and desirable skills if required) to add to the Checklist activity
* Auto-enrolment set-up with automatic group creation selected for Laboratory groups
* A Laboratory Grouping comprising all Laboratory Groups (for larger courses)
* GTAs and staff running the labs enrolled as ‘Non-editing staff’ (as a minimum)

### Where should the Checklist activity be located?

The checklist activity should be located in a dedicated Practical Skills Tracking section on the course Moodle page.

For Level 3 courses with separate Moodle sites for 3A and 3B, we recommend that the skills tracker should be in the 3A Moodle course and skills carried out in both 3A and 3B courses be recorded in the 3A course. You may have to add any students arriving only to the 3B part of the course to the 3A Moodle site.

### How do I review student progress?

Student progress can be reviewed via:

* visual inspection of the Practical Skills Tracking Checklist, or
* by exporting an Excel spreadsheet from the Moodle Grades which displays the percentage progress for each student

**What happens with the completion data at the end of the course?**

The data should be downloaded as an excel sheet by course coordinators and emailed to [lifesci-accreditation@glasgow.ac.uk](mailto:lifesci-accreditation@glasgow.ac.uk) . The number of skills completed in each course in year 2 and year 3 will be combined and used to determine if the threshold 80% completion has been achieved for the Practical Skills Tracking. If the 80% completion has been achieved this will be recorded on the students HEAR transcript at the end of third year.

**What happens if my students have questions about this?**

Have them email the accreditation team at [lifesci-accreditation@glasgow.ac.uk](mailto:lifesci-accreditation@glasgow.ac.uk) (or forward their email).

**Do my students have to complete Good Cause if they miss a practical session during which skills are tracked?**

No. Because this is formative assessment, it does not contribute to their completion of the course so they should not submit Good Cause. If feasible, you can offer reassessment during other repeats of the same lab session on different days, or provide the resources to repeat during a different lab session, however this is completely at your discretion. They should have the opportunity for reassessment at another point in their programme.

Please do not arrange one-to-one sessions with individual students about repeating lab sessions they have missed.

### Which courses will implement the Practical Skills Tracking Checklist?

All core year 2 and year 3 courses will implement the Practical Skills Tracking Checklist:

**Year 2 Semester 1 -**

* 2X Fundamental Topics in Biology 2

**Year 2 Semester 2 -**

* 2A Animal Biology, Evolution & Ecology 2
* 2B Genes, Molecules & Cells 2
* 2C Human Biological Sciences 2
* 2D Microbiology and Immunology 2

**Year 3 Semester 1& 2 -**

* Anatomy 3A/3B
* Biochemistry 3A/3B
* Genetics 3A/3B
* Human Biology 3A/3B
* Immunology 3A/3B
* Marine and Freshwater Biology 3A/3B
* Microbiology 3A/3B
* Molecular and Cellular Biology 3A/3B
* Neuroscience 3A/3B
* Pharmacology 3A/3B
* Physiology and Sports Science 3A/3B
* Zoology 3A/3B

**What about years 1 and 4?**

Year 1 is a training year, giving students experience of many fundamental techniques and also familiarising them with the laboratories and the scientific method, and already has a summative assessment of practical skills. Year 4 option courses are varied and give students the opportunity to gain experience is areas not essential for their degree. Students will be encouraged to record and reflect on any practical skills they develop during their core 4th year courses, their options courses and their honours projects.

**If my student does not get 80% completion of the overall skills tracker, will they not receive the benefits of accreditation?**

No, the degree is accredited, so whether individual students complete the skill tracker does not affect whether they will receive an accredited degree (and the associated benefits).

## Section 2. Setting up the Practical Skills Tracking in Moodle

Before the checklists can be added, lab groups need to be set up and included in the course Moodle. If your course runs repeated lab sessions with different groups of students, this function is extremely important to include to deliver this at a reasonable pace.

**Setting up Lab Groups in Moodle**

### 1. Check that the Lab groups have been created and populated with students

* Navigate to the Moodle course site
* Select **More…** from the Actions menu (gear icon)
* In **Course administration**, select the **Users** tab
* In the **Users section,** select **Groups**
* The Laboratory Groups should be visible with the number of students showing in brackets

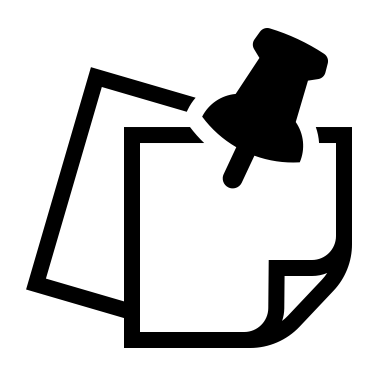
### 2. Create a Laboratory Skills Grouping and add Lab Groups

In the Groups, Grouping and Overview page:

* Select the **Groupings** tab
* Select the **Create Grouping** button
* Type a **Grouping name** (e.g. Practical Skills Tracking) into the text field
* Select the **Save changes** button

On returning to the **Groupings** page:

* Select the **Show groups in grouping** icon (wee person icon)
* Select all Lab Groups from the Potential members list on the right hand panel

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**Tip**: select the first group then holding the Shift key select the last Lab Group to all adjacent Lab groups

* Select the **Add** button to add the Lab groups to the Grouping
* Select the **Back to groupings** button

All Lab groups should be listed for the Practical Skills Tracking Grouping.

## Enrolling GTAs and lab leaders with the ‘Non-editing Staff’ role

The Enrol Users method can be used to enrol GTAs:

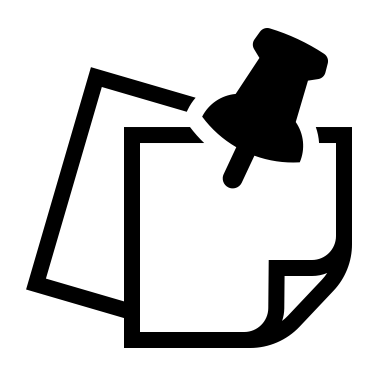
* Navigate to the Moodle course page
* Toggle open the navigation drawer on the left-hand side
* Under **COURSE SETTINGS**, select **Participants**
* Select the **Enrol users** button

The **Enrol users** dialogue box pops open.

* Start typing the name of the GTA in the Select Users Search text field
* Ensure the correct person has been filtered and select

The user will be listed above the Search text field once selected

* Repeat this until all GTAs have been selected
* Select the option **Non-editing Staff** from the **Assign role** drop-down menu
* Select the **Enrol selected users and cohorts** button

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**Tip**: If you need to enrol many GTAs, a CSV-UTF8 file of GUIDs can be used to upload all GTAs at the same time. Please contact [Lesley Hamilton](mailto:lesley.hamilton@glasgow.ac.uk?subject=Bulk%20enrol%20users%20(GTAs)) (eLearning Officer) for further information.

## Locating the Checklist – adding a New section to your Moodle site

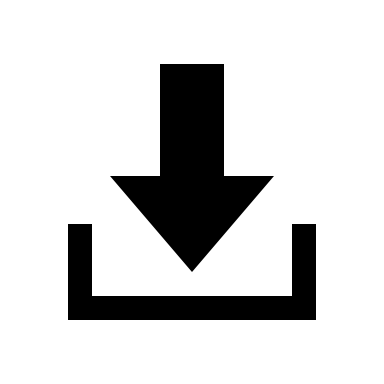
It is recommended that the Practical Skills Tracking checklist be set-up in a new Moodle section.

To add a new section to your Moodle site:

* Navigate to you Moodle course
* Ensure that Editing is turned on for the course (the green **Turn Editing Off** button should be visible)
* Scroll down the course page to the bottom of the content column (very bottom of the page)
* Select the plus icon found to the right of the column to add a new section
* Name the section “Practical Skills Tracking Checklist”
  + Select the pencil icon and type the section name followed by return on the keyboard to apply

**If your Moodle site layout uses the Grid format:**

* Select the **Change image** link located below the Section grid
* Drag and drop the Practical Skills Tracking image onto the drag and drop files here area
* In the **Image alt text** text box type **Practical Skills Tracking section**
* Select the **Save changes** button



Download Practical Skills Tracking Image. Use this icon for your Moodle tile.

A logo with a letter in a circle

Description automatically generated

**If your Moodle site layout is the Collapsed Topics format:**

* Navigate to you Moodle course
* Ensure that Editing is turned on for the course (the green **Turn Editing Off** button should be visible)
* Scroll down the course page to the bottom of the content column
* Select the plus icon found to the right of the column to add a new section
* Name the section “Practical Skills Tracking Checklist”
  + Select the pencil icon and type the section name followed by return on the keyboard to apply

## Adding the Checklist activity to Moodle

### Add the Checklist activity

* Navigate to the Moodle course
* Ensure that Editing is turned on
* Navigate to the **Practical Skills Tracking Checklist** section
* Select the **+Add an activity or resource** link located within the **Practical Skills Tracking Checklist** section
* In the **Add an activity or resource** dialogue box, select the **Activities** tab or use the **Search** field to filter for the **Checklist** activity
* Select the **Checklist** activity
* Set-up the Checklist settings (see [**Adding a new checklist**](#_Adding_a_new) section**)**
* Select the **Save and display** button to begin setting up the checklist items (see [**Editing the checklist**](#_Editing_the_checklist) section**)** , or select the **Save and return to course** button if it is preferable to set-up the checklist items at a later date.

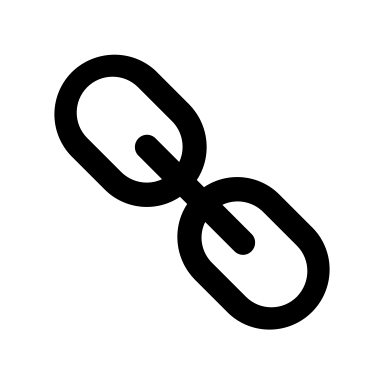
### Update the Checklist settings

* In the **General section** type the name of the Checklist, e.g.. **Practical Skills Tracking Checklist**
* **Settings**:
  + User can add their own items – **No** (default setting)
  + User can add their own comments to checklist items – **No** (default setting)
  + **Updates by** – change to **Teacher**
  + Add due date to calendar – **No** (default setting)
  + **Teachers can add comments** – change to **Yes**
  + Maximum grade – **100** (default setting)
  + Email when checklist is complete - **No** (default setting)
  + Show course modules in checklist - **No** (default setting)
  + Check-off when modules are complete – inactive
  + Lock teacher marks - **No** (default setting)
* **Common module settings**
  + Availability – Show on course page
  + ID number – leave blank
  + **Group mode** – ensure **separate groups** is selected from the drop down menu
  + **Grouping** – select the **Practical Skills Tracking** grouping
* **Restrict access** - no restrictions required
* **Activity completion**
  + **Completion tracking** – change to **Show activity as complete when conditions are met**
  + Require grade – leave un-checked
  + **Require checked-off** – **check** the option box and ensure **100 percent of items** is set
  + Expect completed on– optional
* **Tags** – no tags required

### Edit the checklist (adding checklist items)

There are two options for editing the checklist, i.e. adding the list of Essential and Desirable skills.

* Manually adding the list items – see [**Adding different checklist item types**](#_Adding_different_Checklist)
* Importing the list items using an Excel spreadsheet - please contact [Lesley Hamilton](mailto:lesley.hamilton@glasgow.ac.uk?subject=Importing%20checklist%20items%20from%20a%20spreadsheet) (eLearning Officer) for further information.



View the Moodle: [Checklist quick guide](https://docs.moodle.org/311/en/Checklist_quick_guide) for a detailed description of the Checklist activity.

**Example Checklist**

**Essential** -

Pipetting Skills

Preparation of solutions

PCR

Cloning

Gel electrophoresis

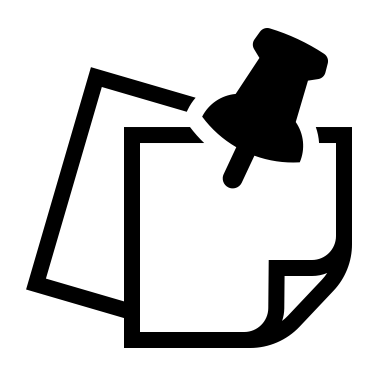
Data analysis

**Desirable** -

Figure and figure legend preparation

Using R for data analysis

#### Adding different Checklist item types

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**Tip**: there are 3 checkbox types:

* Solid line with a green tick mark – ‘This item is required – it must be completed’
* Solid line with no tick mark – ‘This item is optional’
* Dotted line with no tick mark - ‘This item is a heading – it will not have a checkbox beside it’

**To add a Required (i.e. an Essential) skill to the checklist:**

* Ensure that the checklist is **Visible to grouping “Practical Skills Tracking”**
* Type e.g. **Pipetting skills** into the text field
* Select the **Add** button
* By default the checklist item is set to ‘This item is required – it must be completed’

**To add a header to the checklist:**

* Ensure that the checklist is **Visible to grouping “Practical Skills Tracking”**
* Type **Essential Skills** into the text field
* Select the **Add** button
* Select the option box (box on left with green tick) 2 times to change the type of item from ‘This item is required – this item must be completed’ to ‘This item is a heading – it will not have a checkbox beside it’

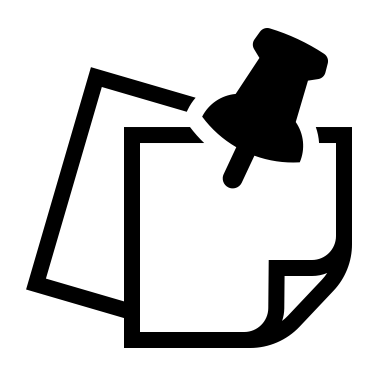
**To add an Optional (i.e. a Desirable skill) to the checklist:**

* Ensure that the checklist is **Visible to grouping “Practical Skills Tracking”**
* Typee.g. **Figure and figure legend preparation** into the text field
* Select the **Add** button
* Select the option box one time to change the type of item from ‘This item is required – this item must be completed’ to ‘This item is optional’

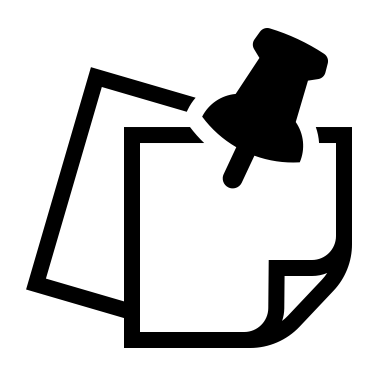
**To add and checklist item with a ‘Link to’ option:**

* Ensure that the checklist is **Visible to grouping “Practical Skills Tracking”**
* Type the checklist item into the text field
* In the **Link to** text field either paste the URL for the link
* Select the **Add** button
* By default the checklist item is set to ‘This item is required – it must be completed’ – change to Optional as required.

The link to option may be used when students need to upload evidence in support of the skill acquired, e.g. a photograph, audio, video files.

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**Tip:** Set-up the Moodle Assignment first then copy the URL for the Assignment link prior to adding the checklist item.

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**Tip:**  When editing the Checklist, the adjacent icons can be used to:

* Change the font colour of the checklist item
* Use the Edit this item to update the checklist item
* Use the Arrow icons to re-order checklist items and/or indent checklist items
* Use the delete icon to delete checklist items
* Use the Insert new item after this one to add

#### Previewing the Checklist

* Select the Preview Tab to view the Checklist

#### Continue editing the checklist

To continue editing the checklist:

* Navigate to the Moodle course page
* Locate the Checklist
* Select the Checklist
* Select **Edit checklist**

## Reviewing Student Progress

### Visual Inspection of the Checklist

* Navigate to the Moodle course page
* Select the **Practical Skills Tracking Checklist** activity
* Select the **View progress** tab
* Select the **Lab Group** from the **Separate groups (Practical Skills Tracking)** drop-down menu
* Checklist items shown in Green with a tick mark indicate that the student completed the skill
* Checklist items shown in Red with red x mark indicates that the student was observed but did not evidence competency in carrying out the checklist skill.
* Checklist items with no Green or Red colour or a check mark/x mark, indicate that the student was absent from the Lab.

### Exporting the Excel Spreadsheet

* Navigate to the Moodle Course page
* If it isn’t already, open the Navigation drawer on the left by selecting the menu icon at the top left
* Under the **Course settings**, select **Grades**
* When the **Grader report** page opens, select the **Export tab**

To download All students:

* Ensure that the **Separate groups** drop-down menu is set to the Course Group, e.g. BIOL2039
* Select the **Select all/none** link at the bottom of the page
* Select the option box for the **Practical Skills Tracking checklist**
* Select the **Download** button

To download a Lab Group:

* Use the **Separate groups** drop-down menu to select the Lab Group, e.g. BIOL2039 Laboratory LB01
* Select the **Select all/none** link at the bottom of the page
* Select the option box for the **Practical Skills Tracking checklist**
* Select the **Download** button