

# Digitizing Fieldwork – if, how, what, where, when?

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## The relevance of fieldwork in teaching

Fieldwork is essential to biology generally, though it is more readily associated with sub-disciplines such as ecology, zoology and botany. Maintaining field-based skills within an increasingly molecular/medical-focused Biology program is challenging, particularly where the backgrounds of both staff and students are varied. However, the learning opportunities and experiences it provides are unique extending well beyond the academic skills to incorporate key life skills such as resilience and team work. Residential fieldwork facilitates a unique opportunity for generating a sense of community among students and regular informal interactions with staff.

While campus-based teaching is structured and provides ample opportunity for reflection and assimilation of material (e.g., through direct audio/video recording of lectures and structured lab-based practical classes), in this project we want to explore ways to record material taught in the field in a way that gives students and staff the chance to reflect on the activities and synthesize the material into the theoretical framework established through introductory lectures and background reading.

During the spring vacation in April there is a second year Biological Sciences module based almost exclusively on teaching activities carried out in the field. The module is BS2078 A Field Guide to Evolution and is held on the island of Mallorca over the course of 10 days.

## Module activities:

- Class exercises: students work individually and/or in pairs in identification and quantification of species (plant and/or animal) in various habitats over the course of the field trip.
- Small group research projects: groups of three students work together in the field and subsequence data analyses. On the last day of the trip the students present their research in a short group seminar. A full project report is submitted in May.
- Habitat treks: throughout the week the staff provide introductions and guides to the various sites that are visited and the students record the information, usually in a field notebook.

Several means of recording from standard smartphones, to small tablets and more specialist outdoor recording options such as GoPro Cameras were considered. As this approach intends to benefit both the teaching and learning of fieldwork activities, the staff-student partnership is central to the project.



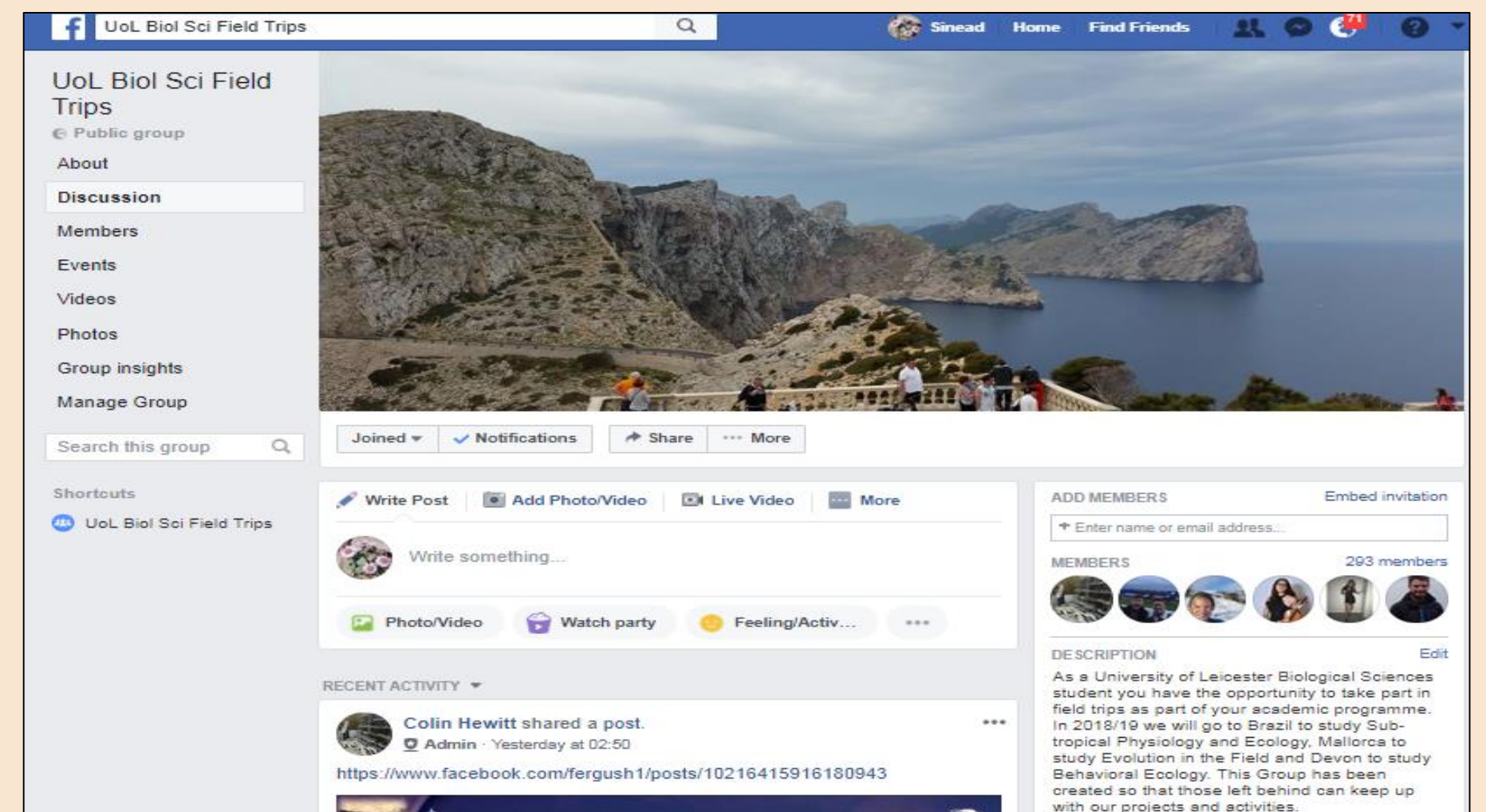
Figure 1. General smartphone photography captures features at the level of entire habitats e.g., the activity of waterfalls in woodland habitats varies from year to year depending on weather conditions; in rocky habitats the general distribution of the native scrub flora can be captured from year to year

## Forms of recordings explored during field trip:

- Smartphone photos and videos – with(out) macro lens
- Digital camera photos and videos
- Go-Pro action camera videos
- Audio files of student seminar feedback – this provides advice that can be incorporated into the final written project reports.

## Considerations:

1. Feasible technology – needs to be lightweight and simple to use in the field
2. Still photos, live action videos? Is audio needed?
3. A repository for the recordings – accessible to all students and staff for uploading and editing.
4. An out-facing site – incorporate with existing Field Course Facebook page established by Colin Hewitt:



5. Recordings should not be limited to staff instructions but could also be used to record student experiences and commentaries on the fieldwork. In addition the opportunities for reflective learning would extend beyond individual academic years and could be used between years also.



Figure 2. Smartphone photography (with optional use of a macro lens) captures structural detail e.g., individual florets in a composite inflorescence; the interaction of pollinators with flowers at a level of detail that allows for identification of the pollinators at least to the level of family or genus which is a key part of some of the group research projects. Smartphone photography (with optional use of a macro lens and video mode) allows for action shots that can be invaluable in observing and analysing aspects of animal behaviour – at required scales e.g. individual tortoises found in beach-side nature reserve; ant foraging and nest building activities.

## What we think so far:

Smartphones are the most convenient and versatile option...but we need to assess data access and quotas for individuals

## What we need to work on and ideas for future fieldwork:

- Editing and cataloguing of images and videos
- Data deposit and access – this year we used Dropbox
- Wider access for students in year 1 and year 3
- Recording of student seminars – at least as audio
- Dictaphones for staff commentaries in the field?