Learning goals for GL Biology Plant Biology lecture on “Flowering: photoreceptors, circadian control, vernalization and flower development”

- Familiarity with the different cues that induce flowering.
- The role of the photoperiod (or daylength) for the induction of flowering (short-day vs. long-day plants).
- Understand the function and regulation of the genes and proteins CONSTANS (CO) and FLOWERING LOCUS T (FT) during short and long photoperiods.
- Understand the experiment to demonstrate that FT is the protein that is transported via the phloem from the leaf (where it is formed) to the shoot apex where it induces the vegetative shoot meristem to become the inflorescence meristem..
- The concept of vernalization and how the regulation of the flowering repressor gene *FLOWERING LOCUS C* (*FLC*) prevents biennial plants from flowering during the first year but only in the second year (e.g., winter wheat, sugar beet, onion, carrot, etc.).
- Understand the anatomy of the Arabidopsis flower and how the three MADS-box transcription factors APETALA 1 (AP1), APETALA3 (AP3) and AGAMOUS (AG) cooperate to form the four different flower organs sepals, petals, stamen and carpels.