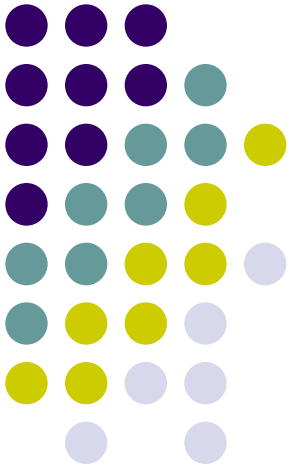
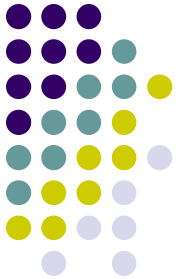
Problem-based learning in Bioinformatics

Intro – Fiona Brinkman



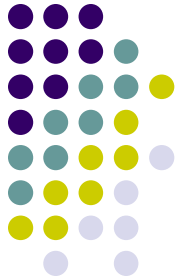
Administrative notes



- Joint SFU and UBC course
  – Instructor Steve Jones. TA Ali Mirza.
- Class Wed and Mon, 3-5 pm
- Course mark:
  60% assignments, 40% group participation
- Location: See course schedule and info you received by email
- Course organization: PBL groups of ~10 participants/group (similar to med school PBL format) – mixing up groups once or twice in the term.

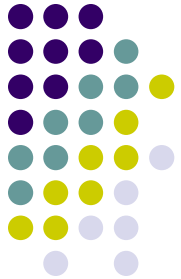
Today

- What is Problem-based learning? (PBL)
  - How would you define “problem-based learning”?
  - What do you think PBL is all about?
  - How is a PBL class structured?



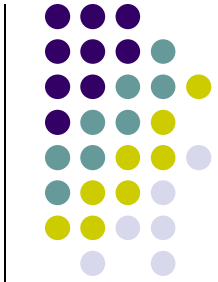
Congratulations,
you’ve just discussed your first PBL problem!

Problem-based learning



- An instructional method characterized by the use of “real world” problems as a context for students to learn critical thinking and problem solving skills, and acquire knowledge of the essential concepts of the course.

Problem-based learning

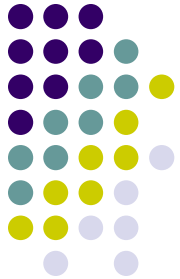


- An instructional method characterized by the use of “real world” problems as a context for students to learn critical thinking and problem solving skills, and acquire knowledge of the essential concepts of the course.
  - Using PBL, students also acquire learning skills which include the ability to find and use appropriate learning resources.

PBL process – Wed class

- Presented with a problem (“case”), read by one or two students (this role rotates between students)
- A student becomes the “scribe” to record main discussion points (role rotates between students)
- The group organizes their ideas and previous knowledge related to the problem - attempt to define the broad nature of the problem.

PBL process – Wed class

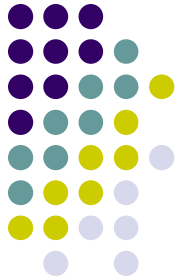


- Students identify, and rank roughly in order of importance, the learning issues generated.

- Some issues assigned to individuals as learning objectives to research (and report back for next class), while some are assigned to the whole group for all to review.

Focus on what you don't know - and question the accuracy of statements!

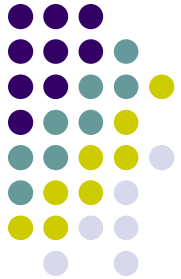
PBL process – Mon class



- Students reconvene at next class – explore previous learning issues and integrate new knowledge for solving the problem.

- After class, an assignment may need to be completed – usually due a week or later after the end of a particular case – which involves some sort of summary of the solution to the problem, depending on the nature of the problem.

Guide to PBL professional behaviour during classes



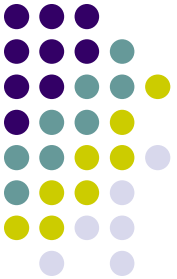
- **Respect** – listen – acknowledge. **Be aware** of both verbal and non-verbal communication
- **Communicate clearly** and directly
- Be **responsible** – punctual – reliable – complete assigned tasks – maintain group dynamics
- **Question** statements and check facts
- Self awareness – continually **self-evaluate**

Facilitator's role

- Guide, probe, and support students' initiatives (not lecture, overly-direct, or provide easy answers)
- Provide some guidance to ensure group discussion stays on track (also a student responsibility)
- Evaluation and feedback at the end of a case
- NOTE: Each facilitator will differ in the way they approach this and their degree of influence

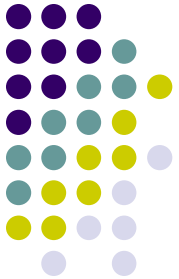
Everyone is an individual

PBL in Bioinformatics 2009



- First case: A “trial run” facilitated by Fiona Brinkman and Ali Mirza in two groups.

Questions?



Questions?

Remember:

- PBL is group-based
- Focus is on learning!

- Specific questions about a case → contact the case facilitator
- General questions about the course → Contact the TA or Steven Jones

- *Enjoy and learn!*