

# Classroom Observation Protocol for Undergraduate STEM – COPUS

This protocol allows observers, after a short 1.5 hour training period, to reliably characterize how faculty and students are spending their time in the STEM classroom.<sup>†</sup> For further information, see: [www.cwsei.ubc.ca/resources/COPUS.htm](http://www.cwsei.ubc.ca/resources/COPUS.htm)  
Smith MK, Jones FHM, Gilbert SL, and Wieman CE. 2013. The Classroom Observation Protocol for Undergraduate STEM (COPUS): a New Instrument to Characterize University STEM Classroom Practices. CBE-Life Sciences Education, Vol 12(4), pp. 618-627

## Observation codes

### 1. Students are Doing

- L** Listening to instructor/taking notes, etc.
- Ind** Individual thinking/problem solving. Only mark when an instructor explicitly asks students to think about a clicker question or another question/problem on their own.
- CG** Discuss clicker question in groups of 2 or more students
- WG** Working in groups on worksheet activity
- OG** Other assigned group activity, such as responding to instructor question
- AnQ** Student answering a question posed by the instructor with rest of class listening
- SQ** Student asks question
- WC** Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor
- Prd** Making a prediction about the outcome of demo or experiment
- SP** Presentation by student(s)
- TQ** Test or quiz
- W** Waiting (instructor late, working on fixing AV problems, instructor otherwise occupied, etc.)
- O** Other – explain in comments

### 2. Instructor is Doing

- Lec** Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)
- RtW** Real-time writing on board, doc. projector, etc. (often checked off along with Lec)
- FUp** Follow-up/feedback on clicker question or activity to entire class
- PQ** Posing non-clicker question to students (non-rhetorical)
- CQ** Asking a clicker question (mark the entire time the instructor is using a clicker question, not just when first asked)
- AnQ** Listening to and answering student questions with entire class listening
- MG** Moving through class guiding ongoing student work during active learning task
- 1o1** One-on-one extended discussion with one or a few individuals, not paying attention to the rest of the class (can be along with MG or AnQ)
- D/V** Showing or conducting a demo, experiment, simulation, video, or animation
- Adm** Administration (assign homework, return tests, etc.)
- W** Waiting when there is an opportunity for an instructor to be interacting with or observing/listening to student or group activities and the instructor is not doing so
- O** Other – explain in comments

### 3. Student Engagement (optional)

- L** Small fraction (10-20%) obviously engaged.
- M** Substantial fractions both clearly engaged and clearly not engaged.
- H** Large fraction of students (80+%) clearly engaged in class activity or listening to instructor.

*Student engagement alternatives:*

- (1) Just mark when engagement is obviously high or obviously low.*
- (2) Count “N” students near you (~10) and assess how many appear engaged at every 2 minute interval. Enter value for all engaged instead of L/M/H. NOTE what your value of N was.*

### Suggestions regarding codes and comments:

- Clarify code choices with comments.
- Consider indicating your confidence regarding coding, especially when you aren’t sure about choice of codes.

**HOW TO USE OBSERVATION MATRIX: Put a check under all codes that happen anytime in each 2 minute time period (check multiple codes where appropriate).** If no codes fit, choose “O” (other) and explain in comments. Put in comments when you feel something extra should be noted or explained.

<sup>†</sup> This protocol was adapted from: Hora MT, Oleson A, Ferrare JJ. Teaching Dimensions Observation Protocol (TDOP) User's Manual. Madison: Wisconsin Center for Education Research, University of Wisconsin–Madison; 2013.



1. **L**-Listening; **Ind**-Individual thinking; **CG**-Clicker Q discussion; **WG**-Worksheet group work; **OG**-Other group work; **AnQ**-Answer Q; **SQ**-Student Q; **WC**-Whole class discuss; **Prd**-Predicting; **SP**-Student present; **TQ**-Test/quiz; **W**-Waiting; **O**-Other
2. **Lec**-Lecturing; **RtW**-Writing; **FUp**-Follow-up; **PQ**-Pose Q; **CQ**-Clicker Q; **AnQ**-Answer Q; **MG**-Moving/Guiding; **1o1**-One-on-one; **D/V**-Demo+; **Adm**-Admin; **W**-Waiting; **O**-Other

For each 2 minute interval, check columns to show what's happening in each category (or draw vertical line to indicate continuation of activity). OK to check multiple columns.

page 2		1. Students doing													2. instructor doing										3. Engagement			Comments: EG: explain difficult coding choices, flag key points for <u>feedback for the instructor</u> , identify good analogies, etc.					
min		L	Ind	CG	WG	OG	AnQ	SQ	WC	Prd	SP	T/Q	W	O	Lec	RW	Fup	PQ	CQ	AnQ	MG	1o1	D/V	Adm	W	O	L		M	H			
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**Further comments:**