**Example tools for Biology GTA TPD – MOST are in the Annotated Bibilography**

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| **Variable** | **Sub-variable** | **Specific variable and measures** |
| GTA Cognition | Knowledge | * Approaches to Teaching Inventory (ATI) (Gormally et al., 2016)
* GTA knowledge survey (Appendix of Gormally et al. 2016)
* GTA knowledge about teaching; PCK PRIME reflection template (Lampley 2015)
* Teaching Science as Inquiry (Smolleck, Zembal-Saul, & Yoder, 2006)
* Cognitive Learning Evaluation (CLE); Hughes and Ellefson, 2013
* Student Assessment of Learning Gains (SALG)
* Peer Inquiry Observation Protocol (Miller et al., 2014)
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|  | Attitudes | * Motivation to teach (Kajfez and Matusovich, 2017)
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|  | Beliefs | * Teacher Beliefs Interview (Luft and Roehrig)
* GTA Identity (Teacher Beliefs Interview Typology; Gormally 2016)
* GTA beliefs about teaching and confidence in teaching (Wheeler et al., 2017)
* STEM GTA-Teaching Self-Efficacy Scale ([DeChenne *et al*., 2012](https://www.lifescied.org/doi/10.1187/cbe.17-03-0044#B19))
* Anxiety and Confidence in Teaching Scale (Reeves et al., 2018)
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| GTA Practice | Planning | * Artifact analysis – e-mails, blogs, lesson plans
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|  | Teaching | * Teaching Assistant Inquiry Observation Protocol (TA-IOP) (Miller et al., 2014)
* Reformed Teaching Observation Protocol (RTOP); Addy and Blanchard, 2010
* EQUIP observation protocol (Gormally et al., 2016)
* COPUS (Smith et al., 2013)
* Laboratory Observation Protocol for Undergraduate STEM (Velasco et al., 2016)
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|  | Assessing | * Artifact analysis of quizzes / exams
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| Impact (Undergraduate) | Knowledge | * Student Assessment of Learning Gains (SALG)
* Student grades
* Cognitive Learning Evaluation (CLE); Hughes and Ellefson, 2013
* Test of Scientific Literacy Skills (TOSLS); Gormally et al., 2012
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|  | Retention | * Institutional educational records
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|  | Attitude | * Classroom Community Scale (CCS); Rovai, 2002
* Science Motivation Questionnaire II (SMQ-II); Glynn et al., 2011
 |
|  | Student assessment of GTA teaching | * Student Evaluation of Educational Quality (SSEQ) (Hughes and Ellefson, 2013)
* Perceptions of teaching techniques (Kendall et al., 2013b)
* College and University Classroom Environment Inventory (CUCEI); Kendall and Schussler, 2012
* Questionnaire of Teacher Interaction (QTI); Kendall and Schussler, 2012
* Laboratory Course Assessment Survey (Corwin et al., 2015
 |
|  | Student Behavior | * Teaching Assistant Inquiry Observation Protocol (TA-IOP) (Miller et al., 2014)
* Laboratory Observation Protocol for Undergraduate STEM (Velasco et al., 2016)
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