COURSE SYLLABUS

TRACK 2
Curriculum Design

COURSE 2
Practice Made Perfect

neuroteachglobal

Title
Practice Made Perfect

Audience
This course is intended for all pre-service and in-service teachers. It is also designed for administrators and those in teacher support roles. It is intended for all educators who want to learn how to use the latest research from the science of teaching and learning to improve their daily work with every child. This course provides teachers with knowledge of research backed strategies to improve student achievement, well-being and the whole-school experience, and the skills to translate them into everyday practices in their class or school.

Prerequisites
There are no prerequisites for this course.

Need for the course
In the last 20 years of research, the factor with the greatest impact on student achievement is teacher efficacy.[1] To increase achievement, well-being, attitudes to learning, self-efficacy, mindset, motivation, and academic tenacity, every student from PreK to 12th grade needs a teacher who has knowledge of the latest research on how to make all this happen, and who has the skills to translate this knowledge into daily practices in their class and school.

But a gap exists between research backed strategies that boost student outcomes and everyday practices in real classrooms – and this gap is wide, long-standing, and hard to cross. Teachers need a means to evolve credibly as we learn more about how learning occurs. And they need it in a format that is engaging, is designed to lead to practical change, and fits the time demands of their schedule. Teachers need professional development designed using the science of learning to teach them about the science of learning.

[1] Hattie, J. (2003). Teachers make a difference: What is the research evidence? Paper presented at the ACER Research Conference, Melbourne, Australia.

Course Description
The approach to in-class assignments, homework, assessment, and grading is one of the most impactful decisions an instructor makes. Thus, dispelling myths about best practices, and developing effective and efficient methods of practice, makes a substantial difference to student performance.

Fortunately, research suggests far more efficient and impactful approaches to in-class work, take-home assignments, and grading. They help students understand their strengths and weaknesses, use their prior learning to help them with current tasks, and continue to grow

and develop competence, confidence, and independence. One recurring theme is that the quality of the tasks teachers set for students is more important than the quantity of minutes spent. Rigor is still important, but as one piece of a much more nuanced puzzle.

The principal goal of this course is to help teachers take a research informed approach to homework, assessments, rubrics, and grading.

Concept #1   Homework: less is more
Concept #2   Most homework should be low-stakes
Concept #3   Students need models from which to work
Concept #4   Formative vs. summative assessment
Concept #5   External conditions matter

Learning Objectives

● Know that the quality of homework is more important than quantity. Know that you should cut out the tasks that are not highly related to what is happening in class, or which will never be mentioned or used again in class. If you wouldn't ever do it in class, do not make a child do it at home. **This matters because** all students deserve to be given high quality homework.

● Know that if possible you should try to offer multiple levels of challenge (since boredom is toxic to motivation and engagement). Be able to create an assignment that offers multiple levels of challenge. **This matters because** fostering engagement helps students learn.

● Know that homework assignments should have a purpose and the purpose should be communicated to students. Be able to show the purpose or relevance of homework to students to help build engagement. **This matters because** research tells us that purpose and relevance are some of the best ways to build intrinsic motivation.

● Know that you should reduce cognitive load for students when they are away from the classroom setting. Know that some ways to do this are providing model answers, helping students draw connections to what they already know, and giving structure and very clear instructions. **This matters because** working memory capacity is limited, so cognitive load can be a significant barrier to learning.

● Know that you should make homework a time for independent practice and mistake-making as these type of assignments tend to have a greater impact than ones that are more open ended or which focus on teaching new concepts. Know that these practice assignments should be low stakes, graded for effort and completion rather than correctness. **This matters because** making mistakes during independent practice and fixing them helps learning.

Instructor
Dr. Ian Kelleher

Credits
2.5 credit hours (see detailed breakdown in later section)

Description of the Experience
"The science of learning" is a name for all the research from many fields that suggests ways to improve learning and boost each child's whole-school experience. Neuroteach Global is an online experience that helps teachers and school leaders learn strategies based on the science of learning and apply them in their own classroom or school. It does it in a way that is itself based on the science of learning: intentionally spaced micro-learning (approximately 10 minutes at a time over a period of roughly four weeks, that teachers can do on the electronic device of their choice). You cannot binge the lessons as research suggests this leads to less retention.

Neuroteach Global is split into 12 courses, each of which takes a total of approximately 2.5 hours to complete. Each course is in the form of an engaging story set in a fictional school. Questions are embedded in the story, serving as both a teaching tool and as a formative assessment. Each course contains two videos and an embedded field guide. In addition, each course also contains two real-world challenges which require you to apply what you have learned in your own course, classroom or school, and then upload an artifact. You will then receive feedback within 72 hours from a real teacher, trained by the Center for Transformative Teaching and Learning, who will either 'pass' you based on a rubric provided by us, or who will give you feedback to reattempt the task.

Before taking the course
Before starting this course, participants take our Neuroeducational Confidence Diagnostic (NECD), which gives us a baseline measure of their knowledge and confidence of research-informed teaching strategies.

During the course
This course includes a variety of activities designed to (1) boost engagement with the material and course; (2) deepen knowledge of research-informed teaching and learning strategies that can help all students; and (3) build skill and confidence in applying these strategies in your everyday practice. It contains:

- **8 chapters of content knowledge.** Each chapter is in the form of a story set in our fictional school, but embedded in each chapter are a set of questions that test teachers' knowledge of what it means to apply the research into the classroom. Teachers can get the information to answer the questions from the story itself, the embedded 'Field Guide', the extra readings given in the field guide, or their background knowledge. If a teacher gets an answer wrong, they receive teaching feedback that will help them get the right answer. Each chapter takes approximately 10 minutes to complete.

- **2 videos.** These are 4-5 minutes long and provide direct instruction on major principles. Following each video, teachers are required to respond to a reflection prompt.

- **2 real-world missions.** Each of these is a task that requires you to apply the course material to your own classroom, course or school. Each mission requires teachers to submit an artefact, which could be a written description or reflection, or a photo of something they have created. Teachers upload these artefacts to Neuroteach Global, where they are assessed by teachers trained by us in the science of learning. Feedback is given within 72 hours, written by real humans. If criteria are not met, teachers are required to redo their real-world mission and resubmit.

- **1 field guide.** The field guide contains key background knowledge, addresses relevant neuromyths, and gives five concepts and five implementable strategies. One suggested use of the field guide is to print it out, highlight sections you want to implement, discuss with peer teachers, and come up with a plan to put it into your class. The field guide also includes a curated list of articles, papers and books, organized by level of complexity, to help participants expand their science of learning journey if they so choose.

After taking the course

After taking all the Neuroteach Global courses they signed up for, teachers take a post-course version of the NECD. This contains the same measures of knowledge and confidence of research informed practices as the pre-course version, plus additional measures that examine if and how Neuroteach Global has changed a teacher's practice.

Calculation of Credit Hours

Neuroteach Global consists of 12 courses. This course, *Practice Made Perfect*, is one of these twelve courses. Each of the twelve courses totals 2.5 credit hours. They all follow the same work pattern, as described underneath.

The *Practice Made Perfect* course contains:
- 8 chapters of content with embedded questions: 8 x 10 minutes = **80 minutes**
- 2 chapters of videos plus response: 2 x 7.5 minutes = **15 minutes**
- 2 real world challenges where you are given a task that requires you to apply the course material to your own classroom, course or school. You upload your response, then receive feedback within 72 hours from a real person: 2 x 20 minutes = **40 minutes**
- 1 Field guide to read, embedded into the online course: **15 minutes**
- The field guide also contains a list of additional background readings, but these are not included in our time calculation.
  Total = 150 minutes (2.5 hours)

The twelve total courses in Neuroteach Global are organized into four themed 'tracks' which contain three courses each. Each course totals 2.5 credit hours, so the total for each of the

four tracks is 3x2.5=7.5 credit hours. So doing all 12 courses/4 tracks in Neuroteach Global would give a teacher 4x7.5=30 credit hours.

This course, *Practice Made Perfect,* fits into the entire scheme as shown in the table below (outlined in bold):

Track 1: Learning Environments, 7.5 hrs	Track 2: Curriculum Design, 7.5 hrs	Track 3: Pedagogy & Assessment, 7.5 hrs	Track 4: Student Success & Well-Being, 7.5 hrs
Teacher as Brain Changers, 2.5 hrs	Planning for Forgetting, 2.5 hrs	Learning Made Memorable, 2.5 hrs	The Science of Study, 2.5 hrs
Classroom Design, 2.5 hrs	**Practice Made Perfect, 2.5 hrs**	The Engaged Brain, 2.5 hrs	Thinking Outside the Brain, 2.5 hrs
Classroom Culture, 2.5 hrs	Building for Every Brain, 2.5 hrs	Feedback Loops, 2.5 hrs	The Brain at 100%, 2.5 hrs

Materials Required
- A phone or computer with a web browser. (It does not matter if it is iOS, Android, Windows, Apple, Chromebook, etc – it just needs a device with a web browser)
- Internet service provider
- Email

Evaluation
Before starting, participants take our Neuroeducational Confidence Diagnostic (NECD). This online tool gives us a baseline measure of participants knowledge and confidence of research-informed teaching strategies. It also provides a measure or self-efficacy – the belief that as an educator I have the skills, knowledge and ability to help all my students. Research tells us that teacher self efficacy can have a significant impact on student achievement.

After taking however many tracks of Neuroteach Global they signed up to take, participants take a second post-course version of the NECD diagnostic. This includes the same questions as in the pre-course diagnostic, so we can get a measure of the progress participants have made in their knowledge of research-informed teaching and learning strategies and their confidence in applying them in their own everyday practice. We also measure if a teacher's self-efficacy has improved. The post-course diagnostic also contains additional measures that examine if and how Neuroteach Global has changed a teacher's practice.

In addition, participants have to complete two real-world challenges. Each real-world challenge demands that participants apply what they have been learning about in their own

class or school. Each challenge requires participants to create an artefact (usually a document or/and image) which they upload to Neuroteach Global. These are assessed by teachers trained by us using a rubric we have created. If participants do not meet the requirements of the real-world challenge they are asked to resubmit. Participants are not deemed to have completed a course of Neuroteach Global until they have successfully completed all the real-world challenges.

This course contains many questions for participants to answer. Participants' responses are recorded, automatically analyzed, and compiled into a learning report which they receive. In the cases when a school signs up a group of teachers to take Neuroteach Global, the school appoints a point-person who will receive a report from us that show's each learner's percentage completion score, whether they have completed the real-world missions, and data on how well they answered the questions. This point person can also get average data for the group. In addition, our customer success representative can answer questions and field information requests that arise during the course of a teacher or school's work with Neuroteach Global.

After taking this course, participants will receive two numerical marks. The first is a "Percent Complete" mark. To get 100%, all components of the course must be finished, including real word missions that have been accepted by graders. The second is a "score" that is calculated based on a combination of components completed and whether you got questions correct on the first, second, third, fourth, or subsequent attempts. On satisfactory completion this course, participants will receive a certificate from The Center for Transformative Teaching and Learning and a link to download a pdf copy of this course description guide.

For More Information
Visit our website: http://neuroteach.us

Contact Us
The Neuroteach Global team can be reached via email at neuroteach@thecttl.org
Neuroteach Global is an online professional development solution from The Center for Transformative Teaching and Learning (CTTL). For more information, visit http://thecttl.org

Neuroteach Global has been accredited as a professional development program for educators by the state of Maryland.

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