

Nombre del curso	Gamificación en STEM
Nombre profesor encargado	Roberto Araya
Créditos (equivalente SCT)	3 créditos
Descripción del curso	El participante conocerá diferentes estrategias de gamificación y cómo medir impactos en aprendizajes de estudiantes y en prácticas docentes con Estudios Controlados Aleatorizados.
Objetivos	<ul style="list-style-type: none"> ● Comprender el rol del juego en el aprendizaje ● Diferenciar entre juego libre y juegos guiados ● Conocer diferentes tipos de juegos: individuales, de a pares, entre equipos y entre cursos ● Conocer ventajas y requerimientos de uso de tecnología para juegos ● Diseñar e implementar mediciones de impacto con estudios controlados aleatorizados clusterizados ● Medir efecto en prácticas docentes
Contenidos	<p>El juego en el desarrollo cognitivo y emocional en animales y humanos</p> <p>El juego libre versus el juego guiado con reglas definidas</p> <p>Juegos de tablero para la enseñanza de matemáticas</p> <p>Juegos de tablero para enseñanza de Física</p> <p>Juegos de tablero para enseñanza de Física</p> <p>Juegos de tablero para enseñanza de Biología</p> <p>Juegos de tablero para enseñanza de Ciencias Sociales y Economía</p> <p>Juegos individuales, de a pares, entre equipos y entre cursos</p> <p>Juegos con uso de plataformas tecnológicas</p> <p>Evaluación de impacto con ensayos controlados aleatorizados clusterizados</p> <p>Efecto de mecanismos motivacionales</p> <p>Efecto en las prácticas docentes</p>
Requisitos	Curso sin requisitos previos
Horario	Por definir
Profesores participantes	Roberto Araya Schulz
Modalidad de evaluación	<ul style="list-style-type: none"> ● Proyecto
Bibliografía	<p>Básica:</p> <ul style="list-style-type: none"> ● Akerlof, R. (2017) Value Formation: The Role of Esteem. Games and Economic Behavior, Elsevier, vol. 102(C), pages 1-19 ● Araya, R.; Isoda, M.; van der Mollen Moris, J. (2021) Developing Computational Thinking Teaching Strategies to Model Pandemics and Containment Measures. International Journal of Environmental Research and Public Health. 18(23), 12520; https://doi.org/10.3390/ijerph182312520 ● Araya R. (2021) Gamification Strategies to Teach Algorithmic Thinking to First Graders. In: Nazir S., Ahrum T.Z., Karwowski W. (eds) Advances in Human Factors in Training, Education, and Learning Sciences. AHFE 2021. Lecture Notes in Networks

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- Araya, R., Isoda, M., & González, O. (2020). A Framework for Computational Thinking in Preparation for Transitioning to a Super Smart Society. *Journal of Southeast Asian Education*, (1), 1-15.
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- Araya, R.; Aguirre, C.; Bahamondez, M.; Calfucura, P.; Jaure, P. (2016) Social Facilitation due to online inter-classrooms Tournaments. *Lecture Notes in Computer Science*. Volume 9891, pp 16-29. Springer
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- Araya, R.; Jimenez, A.; Bahamondez, M.; Dartnell, P.; Soto-Andrade, J.; Calfucura, P. (2014). Teaching Modeling Skills Using a Massively Multiplayer On Line Mathematics Game. *World Wide Web Journal*. Springer Verlag. March, 2014, Vol 17, Issue 2, pp 213-227.
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Recomendada:

- Araya R. (2021) A Territorial Learning Ecosystem for Parents' Participation and Cooperation. In: Mealha Ó., Rehm M., Rebedea T. (eds) *Ludic, Co-design and Tools Supporting Smart Learning Ecosystems and Smart Education*. *Smart Innovation, Systems and Technologies*, vol 197. Springer, Singapore
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