

Master of Science in Virtual Education with a Concentration in Neuroscience and Education

Master of Science in Virtual Education

To recognize that the field of Education can greatly benefit from contributions made by professionals trained in other areas of expertise, it is essential for educators to take an active role in open, interdisciplinary collaboration. With that in mind, Broward International University offers multiple concentrations within its MSc in Virtual Education program, allowing students to choose from a variety of elective courses and tailor the program to their specific career goals.

The available academic concentrations have been selected based on current workforce demand and designed to prepare students to take on specialized responsibilities within each area. The Master of Science in Virtual Education consists of 24 semester credits of core distance education courses (core requirements) plus 12 semester credits of specialized courses that uniquely shape the chosen concentration. Please note that concentrations are not listed on the diploma, but they will appear in detail on the student's Academic Record. Below is a description of the standard MSc in Virtual Education and the MSc. in Virtual Education with its respective concentrations, currently available.

Program Objective

Broward International University's (BIU) 100% online Master of Science in Virtual Education is designed to provide strong theoretical preparation in topics that matter most in education, while also fostering practical technology skills that can be used to meet the challenges of an ever-evolving distance teaching-and-learning environment. Students will develop an appropriate, effective use of technology as a learning tool and will actively work to apply it to expand educational opportunities and boost academic performance. Special emphasis is placed on strengthening students' knowledge and skills in virtual education, instructional media, instructional design, virtual learning platforms, cloud-based learning environments, and virtual learning tools, among others.

Program Overview

The program focuses on the role that new technologies play in the advancement and transformation of virtual education theory and practice worldwide in the 21st century. Students will learn to build websites and create online assessments, develop an institutional strategy for virtual learning, and help learners strengthen effective online study skills. They will also have the opportunity to explore a range of conceptual ideas; for example, how the digital environment changes the way we build knowledge, the politics of virtual learning, and the

the digital era, and the ways video games may influence education and postsecondary training. This degree is primarily geared toward professionals in teaching and administration; media and information specialists; trainers (in government or corporate settings, including managers and supervisors); instructional technologists; curriculum developers; staff-development specialists; and coordinators of distance-learning programs with basic experience using educational technology or virtual education.

Master of Science in Virtual Education with a Concentration in Neuroscience and Education

The Neuroscience and Education concentration—an option within the Master’s in Virtual Education program—was conceptually designed to further strengthen the core preparation in teaching and virtual learning already provided in the MSc in Virtual Education, by offering comprehensive training in the theory and applications of Educational and Cognitive Neuroscience, the Psychology of Learning, and Instructional Design. This concentration will provide the essential knowledge so students can develop the skills needed to critically evaluate the pros and cons of educational trends that, while aiming to address key issues, may be shaped by some of the vague expectations created around the contributions of neuroscience and psychology.

The Master’s in Virtual Education with a concentration in Neuroscience and Education offers a clear overview of how the human brain works and examines how practical it is to apply neuroscientific knowledge to key educational issues. It also provides a broad overview of the history, research methods, and the current state of research in cognitive neuroscience, along with potential educational applications that stem from this field’s contributions. In addition, the program takes a deeper look at the cognitive and behavioral perspectives on learning and knowledge retention, and reviews instructional strategies designed to teach students based on their individual learning differences.

Course Methodology

Our learning approach is flexible, adapts to all learning styles, is fully online, and is delivered through a blend of live sessions and asynchronous group and individual activities that are strongly grounded in case studies. All live sessions are recorded and made available for students to replay (even if they weren’t able to attend), giving the system a high level of flexibility.

Our faculty—all doctoral-level professionals with strong ties to industry—approach theory through real-world case studies from companies and institutions, where the concepts learned are put into practice. The combination of asynchronous discussion forums and live synchronous chats makes it possible not only to build a problem-solving mindset, but also the hands-on application of situated learning in volatile, uncertain

complex and ambiguous—hallmarks of the fourth industrial revolution our society is living through.

These spaces for dialogue and exchange foster an active-learning approach and create synergy with fellow students that leads to the development of essential soft skills and the building of valuable professional connections (networking) that are truly priceless. They strengthen our professional profile by adding a network of peers with master's degrees—colleagues with whom we've built a trusted professional relationship. As a result, our master's students shape their learning through real-world cases, grounded in strong theoretical frameworks, within a flexible online environment—while continuing to build soft skills and integrating a network of professionals who will support them throughout their entire career.

	Nombre del curso	Código	Créditos
1º Período Académico	Technology Development and Integration in Digital Learning Systems	VED6011	3
	Foundations of E-Learning and Digital Instruction	VED6012	3
2º Período Académico	Assessment Design and Evaluation in Online and Distance Education	VED6021	3
	Learning Environment and Diversity	VED6032	3
3º Período Académico	Foundations of Educational Neuroscience (*)	VNS6031	3
	Cognitive Neuroscience and Education (*)	VNS6032	3
4º Período Académico	Neuroscience Applications to Education (*)	VNS6041	3
	Research Methodology	VED6052	3
5º Período Académico	The Ecosystem of Innovation and Knowledge	VED6051	3
	The Psychology of Learning and Instructional Design (*)	VNS6042	3
6º Período Académico	Cloud Learning Environment, and Comparative Study	VED6061	3
	Thesis	VED6062	3

(*) Courses replacing the set of Concentration courses related to the standard MS in Virtual Education.

VED6011 - Technology Development and Integration in Digital Learning Systems: The primary objective of this course is to provide an overview of online education. From the

From the start, students will gain a clear understanding of how virtual education has reshaped the teaching process and how it will shape the future. We will examine every level of the distance education system, giving students the opportunity to develop a broad perspective on the real-world applications of virtual education.

VED6012 - Foundations of E-Learning and Digital Instruction: Online learning (e-learning) in the 21st century provides a coherent, comprehensive, and evidence-based framework for understanding the field. This course examines the technological, instructional, and organizational implications of e-learning systems. It offers practical models that help students leverage the full potential of e-learning; in addition, special emphasis is placed on understanding these technologies through an educational lens.

VED6021 - Assessment Design and Evaluation in Online and Distance Education: Information and communication technologies—and their impact on learning over the past decade—have profoundly reshaped the paradigms, settings, and values of education at every level. In recent years, a continuing challenge has been professionalizing tools and practices while also strengthening academic and technical expertise. This course examines developments in open, distance, and online learning through emerging information and communication technologies, along with methods and tools that have significantly transformed educational paradigms, contexts, and values across all levels during the last decade.

VED6032 - Learning Environment and Diversity: Web technologies are having a major impact on commerce, media, business, and education overall. Beginning with the "Edu-blogsphere," this course focuses on how web technologies are shaping education. Students will explore the potential of blogs, media-sharing services and other social platforms that, while not designed specifically for e-learning, can be used to support student learning and create fresh, engaging opportunities where learning becomes far more personal, social, and flexible.

VNS6031 - Foundations of Educational Neuroscience: This introductory neuroscience course is designed for educators with little or no background in the biological sciences or neuroscience. Its goal is to provide a clear overview of how the human brain works and to assess whether this neuroscience knowledge can be applied to key areas of education. The course examines the anatomy and physiology of the human brain; how neurons communicate through electrical and chemical signals; human brain development; the functions and organization of the brain's attention, memory, and emotion systems; the connection between neuroscience and learning; an understanding of neuroplasticity, its role in learning, and how changes in the brain can translate into changes in human intelligence; as well as other core brain functions that shape how it learns. The primary purpose of this course is to explore how this knowledge could be used, where feasible, to strengthen educators' practices and effectiveness by supporting the learning process.

VNS6032 - Cognitive Neuroscience and Education: This introductory course in cognitive neuroscience is designed for students with no prior background in biology, medical sciences, or psychology. Its goal is to provide an overview of the field's history, research methods, and the current state of cognitive neuroscience research, along with potential educational applications of the contributions from this discipline. It also aims to support an understanding of individual differences in human cognitive and brain development, particularly as learners transition into mature, active learners.

In addition, this course builds an understanding of cognitive and behavioral development, and how these connect to intelligence, memory, emotions, and learning. It explores how cognitive behavior can be applied to educational practice, both in classrooms and in curriculum reform. This course also addresses controversies tied to some of the overly broad expectations that have grown around the contributions of cognitive neuroscience that may be useful to educators. Finally, it reviews the present and future of the relationship between Neuroscience and Education.

VNS6041 - Neuroscience Applications to Education: This course is designed for students to conduct a literature review focused on the latest neuroscience research and its direct applications to education. Students will examine publications that highlight both the positive and negative implications neuroscience has for educational practice and student learning, and—based on what they have learned—will develop and defend their position on the benefits and drawbacks of brain-based learning approaches.

VED6052 - Research Methodology: In this course, students will develop a scientific research project that will serve as the foundation for a Master's thesis. To do so, students must rigorously follow the applicable steps of the scientific method, including the parts of the research process related to conceptualization and ethics, as well as a description of the qualitative, quantitative, or mixed-method approach to be used. Specifically, students will identify and define a problem of interest that warrants seeking a solution and/or answers to related questions formulated to deepen understanding of the issue; they will address the problem and/or related questions by conducting a background review to gather information and become familiar with what is currently known about the problem and/or the proposed related questions, including possible answers; they will establish the parameters to be used to study and understand the selected problem and/or the questions posed.

They will conceptualize and design the scientific method to be used to conduct the study. They will plan and present a clear, thorough research proposal that includes all of the elements above and, in addition, a detailed description of the procedures to be followed during fieldwork implementation, as well as the population expected to participate and/or the sample to be collected for future analyses, and a description of the method for evaluating the information obtained. Students must follow the most current version of APA guidelines when writing their research proposal. The student must successfully complete this requirement with a grade of B or higher in order to graduate.

VED6051 - The Ecosystem of Innovation and Knowledge: This course gives students a well-rounded overview of the cognitive and behavioral perspectives on how people learn and retain knowledge, and reviews instructional strategies designed to teach learners based on their individual learning differences. It takes a closer look at the social, emotional, and cognitive processes involved in learning, as well as theories of

VNS6042 - The Psychology of Learning and Instructional Design: This course gives students a comprehensive overview of the cognitive and behavioral perspectives on human learning and knowledge retention, and reviews instructional strategies designed to teach learners based on their individual learning differences. It explores in depth the social, emotional, and cognitive processes involved in learning; major learning theories (constructivism, behaviorism, Piaget's theory of development, brain-based learning, multiple intelligences, right-brain/left-brain); how learning methods are identified and studied to better understand how people take in and retain new information; and the recommendation of specific strategies for educators to refine instructional designs and elective plans in order to improve students' learning process in light of those individual differences. As time allows, other education-psychology topics that are essential to supporting learning will also be addressed. Learning (constructivism, behaviorism, Piaget's theory of development, brain-based learning, multiple intelligences, right-brain/left-brain), the identification and study of learning methods to better understand how people absorb and retain new information, and the recommendation of specific strategies for educators to adjust instructional designs and lesson plans in order to improve students' learning process based on their individual differences within that process. As time allows, other topics related to the psychology of education that are key to promoting learning will be addressed.

VED6061 - Cloud Learning Environment, and Comparative Study: In this course, students will examine the growth of virtual education worldwide in order to compare experiences and form their own perspective on the current state of online learning. Starting with a definition of cloud computing, why it exists, and its advantages and disadvantages. Students will explore the full range of cloud platforms, including infrastructure, services, applications, and security. They will assess the value of cloud computing, including licensing models and ROI, and build understanding of abstraction, partitioning, virtualization, capacity planning, and a variety of scheduling solutions. Discussion will cover the use of web services from Google®, Amazon®, and Microsoft®, along with cloud communication methods such as instant messaging, Twitter®, Google Buzz, and Facebook®, and students will learn how cloud services are reshaping mobile phones—and how mobile phones are reshaping the cloud.

VED6062 - Thesis : In this course, students are expected to continue and complete their Master's Thesis. To do so, students must systematically follow the scientific method described as part of their previously completed and approved research project. During this final phase, the student must carry out the approved procedure to conduct fieldwork, which may be repeated as needed to ensure that the data collected is accurate and reliable at the time it is gathered.

Gather the information obtained through experimentation and/or observation. Carefully document all collected data (observations, measurements, survey information, and other predefined data) according to the variables evaluated. Analyze the recorded data using the appropriate methodology; Interpret the results with a primary focus on proposing a solution to the selected problem and/or answering the related questions that were posed, while remaining open to opportunities to address other aspects of the stated problem that were not previously identified as objectives but that emerge from interpreting the data obtained.

Draw conclusions based on the experimental results and provide recommendations that point to relevant new scientific research. Students must follow the most up-to-date version of APA guidelines when writing their Master's Thesis, and coordinate a final oral presentation, which must be considered an integral part of a research project. The student must successfully complete this requirement with a grade of B or higher in order to graduate.