

FIU's Center for Children and Families (CCF) Facilities, Equipment and Other Resources

Institutional Environment

Florida International University (FIU) is a multi-campus public research university offering a broad array of undergraduate, graduate, and professional programs. The university has two main campuses: the 344-acre Modesto A. Maidique campus in western Miami-Dade County and the 200-acre Biscayne Bay Campus in northeast Miami-Dade County. Through 11 colleges and schools, FIU offers more than 190 bachelor, master, and doctoral degree programs and conducts basic and applied research. Interdisciplinary centers and institutes conduct collaborative research to seek innovative solutions to economic, technological, health, and social problems. Annual research expenditures exceeded \$196 million in 2017-2018. The Carnegie Foundation for the Advancement of Teaching classifies FIU in its highest category: R1 Doctoral Universities – Highest Research Activity. With a student body of more than 56,000 students (Fall 2018 enrollment), more than 1,200 full-time instructional faculty, and more than 15,000 degrees awarded during the 2017-2018 academic year, FIU is the largest university in South Florida and the second largest in the Florida State University System (SUS).

Located on the Modesto A. Maidique campus of FIU, the **Center for Children and Families (CCF)** – Director: William Pelham PhD – is an FIU Preeminent Program and a world-class clinical research center dedicated to improving the lives of children and families struggling with mental health problems.

CCF's 38 faculty members advance evidence-based knowledge of the causes, mechanisms, outcomes and interventions for mental health and learning problems of youth; promote the development of effective treatments and prevention through scholarly research; provide state-of-the-art prevention and treatment services to children and families in South Florida; and educate students, consumers and professionals in mental health, education and primary care.

Our faculty affiliates who are from the College of Arts, Sciences and Education (CASE), the College of Medicine, the College of Public Health and Social Work, the Wertheim School of Nursing and Health Sciences, and the School of International and Public Affairs possess a broad range of expertise in child, and adolescent mental health, as well as statistics. They are joined by one M.D. faculty (a developmental and behavioral pediatrician) and one full-time pediatric nurse, four faculty statisticians, five postdoctoral fellows in clinical psychology, four licensed clinicians, 97 graduate students across the APA-approved Clinical Science Doctoral Program in Child and Adolescent Psychology and the Professional Counseling Psychology Master's program, and 450 undergraduates who participate annually in one of our affiliated laboratories. Additionally, the CCF employs more than 70 full-time research assistants/associates/clinicians and 91 part-time staff. CCF's research and clinical operations are supported by an administrative director, three full-time grants management specialists, a full-time clinical director, six full time secretarial/administrative front- and back-office staff, and one IT Generalist. Five of the staff members are clinicians working full time in the CCF community clinic. CCF's Data

Center Team, consisting of three full time technical professionals and two part-time data entry staff, provides secure computing environments and resources to support innovative research, consultation, and data storage and analysis (see Data Center below). These faculty, staff and students are housed in a total of 26,366 square feet of space spread across three contiguous buildings in the Academic Health Center Complex (Buildings 1, 4 and 5), the adjacent PG5 Building, and in the building that houses the FIU Psychology Department (please see below for detailed description).

CCF's state-of-the-art physical facilities and resources serve as the project site for all of the faculty and student research projects and the CCF community mental health clinic that serves more than 3000 families per year. The center's existing infrastructure is ideal for facilitating the conduct of clinical research projects and its intellectual environment is rich with other extramurally funded investigators. The CCF provides all associated projects with more than adequate office, clinical, and research space, computer and telephone equipment, grants management, statistical software and consultation, and other resources as necessary to facilitate faculty research as well as next-door access to the university's magnetic resonance imaging facility (see MRI below). Additionally the CCF clinic houses a large collection of assessment materials and treatment manuals.

As a complement to education and research projects, CCF faculty have broad community connections that facilitate research with both typical and clinical populations, as well as clinical endeavors. The center has a memorandum of agreement for research with the Miami-Dade County Public Schools (MDCPS), the fourth largest school district in the U.S, and participates in regular meetings with the district special education directors and staff to discuss training, educational, and research collaborations. To ensure that collaboration with MDCPS is mutually beneficial, the CCF shares the cost of an employee (formerly full time at the District for over 20 years), who acts as the interface between the District and the CCF with respect to the research programs the Center conducts with the district. Similar relationships exist with the Broward County Schools, the seventh largest district in the country. Since 2010, the CCF has worked with nearly 500 schools to provide thousands of hours of intervention, consulting, and continuing education/in-service training to school staff. In addition to strong relationships with the area schools, the CCF has a close affiliation with Nicklaus Children's Hospital (until recently known as Miami Children's Hospital), primary care and specialty physicians throughout both counties, Our Kids of Miami and Monroe County, Inc., and with many mental health facilities in South Florida. Finally, the CCF works closely with and is funded in part by the Children's Trust of Miami-Dade, the public entity that is the largest funder of child-focused services in Miami-Dade County. These entities facilitate CCF recruitment and service provision to the target populations for child- and family-focused research and treatment.

CCF's externally funded research, education and training programs are supported by 48 external awards that total (in April 2019) over \$70 million—the vast majority from federal agencies. These include the National Institute of Mental Health (NIMH), the National Institute on Drug Abuse (NIDA), National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institute on Child Health and Human Development

(NICHD), the National Science Foundation (NSF) and the Institute of Education Sciences (IES). Finally, the CCF is one of the stand-alone sites for the NIDA-funded ABCD grant.

Facilities

At FIU's Modesto A. Maidique campus, the CCF has facilities in three buildings in the Academic Health Center (AHC) complex, in PG5, as well as in the building that houses FIU's psychology department. All of these buildings are within a 3-4 minute walk from each other. These spaces house 45 faculty and staff offices, 70 staff/graduate student/research assistant cubicles, 23 testing/therapy/interview rooms and 3 larger group rooms, all equipped with one-way windows and or cameras, 6 medical examining rooms, 2 sound/video monitoring rooms, two family waiting rooms and reception desks, 4 file-storage rooms and 5 conference/meeting rooms also equipped with video/audio equipment for filming and display.

Dedicated parking for clients and research participants is available at all of the CCF locations. The primary CCF clinical site is a 13,639 square foot clinic and clinical research facility in the AHC 1 building. At this site, project personnel have access to 101 testing and clinical treatment rooms (with observational windows and wired for sound and video), ranging in size from individual testing rooms to a large group playroom and a space that can be configured as a living area for in vivo interventions; three fully equipped medical examination rooms (stadiometers, scales, exam tables, blood pressure monitors, saliva kits); a waiting room for parents and children; two conference rooms and a larger presentation room equipped with audio-visual meeting and teleconference technology; a copy room; two large cubicle-equipped (16 cubicles, each with a VOIP phone and networked computer) bullpen rooms for research staff and graduate students; a controlled access room for patient files; and 31 offices for faculty and staff equipped with VOIP telephones and networked computers. In this space, the CCF conducts an outpatient child mental health clinic providing evidence-based psychological services and adjunctive medication for children ages toddlerhood through adolescence. More than 3,000 families are seen annually through our research opportunities and clinical services. An on-campus university pharmacy provides medication services for clinical trials.

Also available for predoctoral and postdoctoral student research and training is 4,756 square feet of dedicated space for research and clinical applications with families and children that was opened on the ground floor of the AHC 5 building. This specially constructed space has a large reception area that contains adult and child waiting areas with multiple restrooms, and is staffed by a receptionist and staff to watch children. The space has 8 testing and treatment rooms with observational windows wired for sound and video that can accommodate individuals and families. A large observational/AV control center with 5 cubicles allows for multiple individuals to simultaneously observe and record sessions. Additional rooms include: two large conference rooms equipped with audio-visual meeting and teleconference capabilities; four fully equipped medical examination rooms; a laboratory room specifically designed for blood drawing; a kitchen equipped with a refrigerator and sink; and a room specifically designed and equipped for the collection of psychophysiological data (e.g., EEG data, EKG, EMG) as well as behavioral data (Noldus Observational System). A controlled access room provides ample storage space

for patient files, while one large room allows bullpen space (equipped with a copier, VOIP phones, and networked computer access) for research staff and graduate students. The fifth floor of the AHC 5 accommodates 32 graduate student and staff cubicles in 1,042 square feet of space.

A third primary space for CCF clinical research is in PG5, across the street from AHC 5 and immediately adjacent to the space housing the University's dedicated research MRI facility to which CCF faculty have access. This 2800 square-foot space has eight therapy/testing rooms, a conference/group room with AV equipment, and a small waiting room.

CCF faculty not located in AHC 1 and their research assistants are housed on the fourth floor of AHC 4. There are 14 faculty and staff offices, a secretarial station, and a large room (4,121 square feet) with 22 individual cubicles for RAs and graduate students and a large common space with 13 desks and tables for part-time or undergraduate research staff, as well as a data storage room.

Through the Department of Biomedical Engineering, CCF faculty have access to a MagVenture MagPro R30 Transcranial Magnetic Stimulation (TMS) System, and Advanced Neuro-technology (ANT) 64-electrode Electroencephalography System (EEG). Both systems are equipped with the Visor2 System with the NeuroNavigation Package, which facilitates TMS coil positioning and EEG source localization. A number of CCF faculty (clinical and cognitive neuroscience) and research assistants are housed in AHC 4. There are 14 faculty and staff offices, a secretarial station, and a large room (4,121 square feet) with 22 individual cubicles for RAs and graduate students and a large common space with 13 desks and tables for part-time or undergraduate research staff, as well as a data storage room.

Adjacent to this space is the Cognitive Neuroscience & Imaging Center (CNIC) in PG5 which includes a total of eight meeting rooms, one file room, and one mid-sized conference room equipped with AV equipment in a 2,808 square feet space. This space is immediately next to the new FIU Center for Imaging Science, (CIS), a multi-disciplinary research center, designed to support an integrated community of investigators at the forefront of imaging science, with an emphasis on functional neuroimaging research.

Magnetic Resonance Imaging (MRI)

FIU's Center for Imaging Science (CIS) is a multi-disciplinary research center housed in the FIU Office of Research and Economic Development (ORED) and designed to support an integrated community of investigators at the forefront of imaging science, with an emphasis on functional neuroimaging research.

The CIS hosts a research-dedicated **3T Siemens MAGNETOM Prisma MRI** scanner, which is the newest MRI technology from Siemens. It is a high-performance 3T MRI magnet with benchmark homogeneity of 1.1ppm at 50cm, higher-order shim, large FOV of 50x50x50 cm³, and zero helium boil-off. The MAGNETOM Prisma was designed to deliver outstanding gradient performance, with 80 mT/m at 200 T/m/s simultaneously, which is not been achieved by any other MRI vendor. The gradient technology includes

ultra-high performance cooling, a force-compensated design for reduced vibrations, with a 60-cm bore and excellent long-term stability and minimized acoustic noise. The MAGNETOM Prisma also includes the Tim 4G integrated coil technology to accommodate a unique **32-channel head/neck coil** designed for maximum signal-to-noise ratio. Beyond these hardware features, the MAGNETOM Prisma includes the most innovative software applications that enable trend-setting applications, including SMS (simultaneous multi-slice; i.e., “multiband imaging”) imaging for echo-planar imaging (EPI) (including both functional magnetic resonance imaging (fMRI) and diffusion-weighted imaging (DWI)) pulse sequences.

The MRI scanner is equipped to run the Human Connectome Protocol, which entails state-of-the-art multiband data acquisition, advanced motion correction (PROMO), EPI distortion correction (EPIC), ultra-fast data acquisition facilitating HARDI (in place of DTI) and high-resolution, sub-second TR EPI acquisition. The MR suite is also equipped to deliver visual and auditory stimuli, and record behavioral responses and eye movements. A computer equipped with E-Prime is available for stimulus presentation and behavioral response collection. **Visual presentation** is provided by an LCD display, the NordicNeuroLab 40” 4K UHD InroomViewingDevice. **Auditory presentation** is available either via Sensimetrics Model S14 or the Avotec Conformal Headset. **Multiple response devices** are provided by Current Designs, Inc. An MR-compatible Biopac system is available for **physiological monitoring**, including respiratory and cardiac signals. Weighted blankets are available to minimize participant motion and ensure comfort. A mock scanner, constructed to be nearly identical to the 3T machine, is located in the room next to the imaging suite. The mock scanner is equipped to allow stimulus presentation, motion training via MoTrak, and create scanner noises in order to prepare participants for the imaging sessions.

The 3,178-square-foot MRI facility is housed on the FIU Modesto Maidique (Main) Campus in the PG 5 Building. The facility was established as a hub for interdisciplinary activities in neuroscience research and student training on campus. The facility encompasses a MR scanner suite (525 sq. ft.), a control room (103 sq. ft.), with associated reception, waiting areas, and dressing rooms (353 sq. ft.) and a MR simulator/mock scanner suite (366 sq. ft.). The facility is conveniently located adjacent to CCF space in the building (CCF waiting and interview/treatment rooms) and AHC 5.

CCF Data Center

The CCF’s Data Services team provides secure computing environments for data management tasks, including the following services that allow to promote effortless collaboration within CCF Research Groups and Units:

1. REDCap - A scalable, web-based electronic data capture system developed at Vanderbilt University for securely collecting and managing research data. REDCap allows researchers to build online surveys and databases over a secure web connection.
2. SharePoint – A collaboration platform and content management system developed by Microsoft that is integrated with the Office desktop suite of tools. CCF SharePoint offers secure web access to file and list content as well as reporting, workflows, and process automation.

3. CCF Research Share Drive – This file server provides workgroup file shares (network drives) for most CCF's Research Group and is secure and encrypted data storage hosted by the FIU's Division of Information Technology (IT).

This team, led by the CCF's Data Manager, provides for planning, configuration, application development and user control and end-user support. All CCF's data services feature authentication (require their users to have an active FIU Account), auto-logout setting, data logging (audit trails for tracking data manipulation and export procedures), user privileges, etc. Five full or part-time data entry/programming/data analytic staff work with the director.

CCF's data services are housed in the FIU Data Center, which is managed and monitored 24/7 by the FIU Division of IT's Operations Department. Its power infrastructure includes enterprise-grade power distribution systems, which are fed with conditioned power from a redundant Uninterruptible Power Supply (UPS) that will provide a smooth transition to an on-site generator in the unlikely event of a total power outage. For the unlikely event of a fire, the Data Center contains an advanced clean agent fire-suppression. To ensure security and to prevent unauthorized access to restricted servers, the FIU data center has a variety of access controls, including, but not limited to, firewalls and intrusion protection systems, two-factor entry systems, 24/7 monitored alarm and video surveillance systems. Software engineers within the FIU Data Center perform software maintenance and upgrades under the direction of, and in concert with, the CCF's Data Manager. The FIU's Division of Information Technology Security Office and the CCF's administration provides Policies and Standards related to physical and technical security, contingency planning and incidence response that align with the University Compliance Office policies and procedures regarding Health Insurance Portability and Accountability Act (HIPPA).

A large number of statistical software packages (MPLUS, SAS, SPSS, and others) as well as a large centralized data storage system are available to CCF researchers. All faculty members have connections to the Internet, and all department buildings have full access to secure wireless networking. FIU's IT Division and the College of Arts and Sciences Technology Information Center (CASTIC) provide instructional workshops as well as maintenance, updates, and repairs of computer hardware and software as needed and access to FIU's High Performance Computing Center. Additionally, four FTE quantitative psychologists (Coxe, Hayes, Timmons, and Valente) have joint faculty appointments between psychology and the CCF and are housed in CCF space. They have expertise in a wide variety of contemporary statistical analyses relevant to the studies being conducted by CCF faculty and provide extensive statistical consultation and collaboration to CCF faculty and graduate students (Coxe: SEM, parametric and nonparametric analyses; Hayes: missing data; Valente: mediation and causality in longitudinal methods; Timmons: data analysis for mobile assessment technology, predictive analytics, machine learning).