

2025 Carbon Microelectromechanical Systems conference (C-MEMS 2025) Schedule and Program

Date: January 13-14, 2025, 8:00 AM – 5:00 PM

Location: Shalala Center, University of Miami, Coral Gables, Florida, USA

Conference website: <https://mds.coe.miami.edu/c-mems-conference/index.html>

Zoom link for remote participants:

<https://miami.zoom.us/j/99164091404?pwd=kjZxyw09VcEeyXk0gm8EgBtv6ZaHCX.1>

Meeting ID: 991 6409 1404

Passcode: 570682

Note to speakers, please send in your presentations by January 12, 2025, 5:00 pm Eastern Standard Time. Coffee/Tea/Water will be available throughout the event at the conference venue.

Day 0, January 12, 2025 – Networking event

6:30 pm – 8:30 pm	Young professionals/Early Career Researchers networking event Venue: College of Engineering, 1251 Memorial Dr., Coral Gables, FL 33146
-------------------	---

Day 1, January 13, 2025

8:00 am - 8:40 am	Registration, continental breakfast, and coffee, Shalala Center Ballroom East, 3 rd floor
8:40 am - 9:00 am	Welcome from conference chair Dr. Chunlei Wang and Dean Biswas
9:00 am- 9:45 am	Featured talk: A powerful, Novel Electrochemical Transistor: The 3D Carbon Redox Amplifier (Speaker: Dr. Marc Madou, UC Irvine)
9:45 am - 10:00 am	Welcome from NSF Office of International Science & Engineering (Dr. Kara C. Hoover, Program Director Office of International Science and Engineering (OISE))
10:00 am -10:30 am	OptoElectrical Devices for Therapy and Modelling of Parkinson’s Disease (Speaker: Dr. Jenny Emnéus, Technical University of Denmark)
10:30 am - 10:40 am	Coffee break
10:40 am - 11:05 am	Carbon Nanotube Network Metamaterials for Applications (Speaker: Dr. Hiroshi Furuta, Kochi University of Technology)
11:05 am -11:30 am	Unified Charge Control Model for Nanoscale Graphene Transistors (Speaker: Dr. Michael Shur, Rensselaer Polytechnic Institute)
11:30 am - 11:55 am	C-MEMS and Broadening Carbon Ring (Speaker: Dr. Chunlei Wang, University of Miami)
11:55 am - 1:30 pm	Lunch (Centennial Village Dining Hall) and Networking (See map in attachment)
1:30 pm - 2:00 pm	Integration of pyrolytic carbon electrodes in photovoltaic retinal implants (Speaker: Dr. Stephan Sylvest Keller, Technical University of Denmark)
2:00 pm - 2:30 pm	Inkjet-Printed PEDOT-Derived Electrodes for Sensing Applications (Speaker: Dr. Adriana Hernandez, Universidad Nacional Autónoma de México)
2:30 pm - 3:00 pm	Carbon nanoelectrode for single-entity detection and analysis (Speaker: Dr. Jin He, Florida International University)
3:00 pm – 3:30 pm	Expanding the carbon toolbox beyond C-MEMS (Speaker: Dr. Rodrigo Martinez-Duarte, Clemson University)
3:30 pm - 4:30 pm	Poster presentation session, Shalala Center, 3 rd floor (Posters will stay up for the duration of the conference)

5:00 pm - 7:00 pm	Cultural immersion and banquet, Frost Institute for Chemical and Molecular Science, 1201 Memorial Dr, Coral Gables, FL 33146
-------------------	--

January 13, 2025 – List of poster presentations

Poster 1	Computational Investigation of Metal-Halide Clusters as Building Blocks for Hybrid Perovskites in Photocatalysis and Photovoltaic Applications (Presenter: Ariel Sharon Asare, International Center for Theoretical Physics)
Poster 2	Optimizing 3D Printing and Thermolysis of Resins for High-Performance Carbon Microstructures in C-MEMS Applications (Presenter: Felix Wimmer, Clemson University)
Poster 3	Artificial Intelligence-Driven Approaches for Battery State Estimation (Presenter: Kepei Miao, University of Miami)
Poster 4	Investigating the impact of acid hydrolysis on the properties of bacterial cellulose nanocrystals for carbonization (Presenter: Manasi Shah, Clemson University)
Poster 5	Leveraging Biochar for Net-Zero Carbon Asphalt Pavements: Advanced Carbon Material Applications for Sustainable Infrastructure (Presenter: Dr. Meili Liu, University of Miami)
Poster 6	Effect of Dielectric Barrier Discharge Plasma Treatment on Polytetrafluoroethylene (PTFE) Surface Chemical Composition (Presenter: Vijay Paharia, Florida International University)
Poster 7	Wafer scale pyrolytic carbon nanogap electrodes for electrochemical sensing (Presenter: Nicolai Støvrig, Technical University of Denmark)
Poster 8	Investigation of a Glassy Carbon BioFET for the Detection of Analytes: Case of Glucose (Presenter: Sara Herrera, San Diego State University)
Poster 9	The Effect of Temperature on the Rate of Bipolar Electrochemical Reactions - Performance in Capacitors (Presenter: Colin Brady, University of Miami)
Poster 10	Directed nano printing of carbon precursors from bacterial cellulose (Presenter: Melanie Howe, Clemson University)
Poster 11	AI-powered Real-Time Cardiac Health Monitoring: A Novel Ensemble Approach for Blood Pressure Estimation (Presenter: Rafita Haque, Florida International University)
Poster 12	Exploration of Bioelectronic Device for Epileptic Seizure Management using Glassy Carbon Electrodes (Presenter: Paulette Suro, San Diego State University)
Poster 13	Glassy carbon-based cuff microelectrodes for Vagus Nerve Stimulation (VNS) (Presenter: Neharika Ravichandran, San Diego State University)
Poster 14	Unveiling the Mechanisms of Electrode Modification and Battery Failure for Iodine-based Cathode in the Lithium-Iodine Battery (Presenter: Yunhe Zhao, University of Miami)
Poster 15	Fourier Feature Networks for Terahertz Plasma Wave Oscillations in Diamond TeraFETs (Presenter: Muhammad Mahmudul Hasan, Florida International University)
Poster 16	Development of a Real-Time Wearable Foot Pressure Mapping Device Using Piezoresistive Sensors (Presenter: Yuelin Wang, University of Miami)
Poster 17	3D printed ceramics with triply periodic minimal surfaces (TPMS) (Presenter: Adam Hussain, University of Miami)
Poster 18	Upcycling used textiles for sustainable carbon-based biomedical devices (Presenter: Matthew Vervuurt)
Poster 19	Comparison of Optical Behaviors for CNT-Based Metamaterials using HFSS Simulation (Presenter: Yleana Ceballos)

Day 2, January 14, 2025

8:30 am - 9:00 am	Coffee, continental breakfast, and networking
9:00 am - 9:25 am	Carbon-MEMS: A New Era in Medical, Sensors, and Energy Technology (Speaker: Dr. Tarun K Bhattacharyya, Indian Institute of Technology Kharagpur)
9:25 am - 9:50 am	Surface Modification of Glassy Carbon: Techniques to Enhance Sensitivity (Speaker: Dr. Bidhan Pramanick, Indian Institute of Technology Goa)
9:50 am - 10:15 am	Fabrication of novel oxide semiconductor nanostructures applying for optical devices (Speaker: Dr. Chaoyang Li, Kochi University of Technology)
10:15 am - 10:40 am	Re-Imagining Carbon: The Quest for Carbon Hybrid Materials Discovery and Synthesis (Speaker: Dr. Samuel Kassegne, San Diego State University)
10:40 am - 10:55 am	Coffee and networking break
10:55 am - 11:20 am	Carbon-Based THz Plasmonic Devices for Next-Generation Communications, Sensing, and Imaging (Speaker: Dr. Nezih Pala, Florida International University)
11:20 am - 11:45 am	3-minute pitch talks (Speakers: Ariel Asare, Meili Liu, Carina Chávez Granados)
11:45 am - 1:00 pm	Networking and lunch at the Centennial Village Dining Hall (See map in attachment)
1:00 pm - 4:20 pm	Technical presentation session (Speaker details – see below)
4:20 pm - 4:45 pm	Coffee and round table discussion (Moderator: Dr. Meghan Manfra)
4:45 pm - 5:30 pm	Panel discussion on sustainability of C-MEMS research (Moderator: Dr. Vadym Drozd)
5:30 pm - 5:45 pm	Closing remarks (Dr. Chunlei Wang passing to Dr. Sam Kassegne)

January 14, 2025 – Technical presentation session (15 minutes per presenter + 5 minutes Q&A)

Speaker 1 (1:00 pm - 1:20 pm)	Reactive Molecular Dynamics Modeling and Experimental Investigation of Engineered Hybrid Carbon Materials (Speaker: Carter Faucher, San Diego State University)
Speaker 2 (1:20 pm - 1:40 pm)	Hierarchical micro- and nanostructured 3D interdigitated pyrolytic carbon electrodes derived from additive manufacturing for on-chip microsupercapacitors (Speaker: Swetha Vasudevan Kanakkottu, Technical University of Denmark)
Speaker 3 (1:40 pm - 2:00 pm)	A brain on chip device featuring 3D pyrolytic carbon cup electrodes to study neurotransmitter release from midbrain and forebrain organoids (Speaker: Samuel Maraschin, Technical University of Denmark)
Speaker 4 (2:00 pm - 2:20 pm)	Wafer scale pyrolytic carbon nanogap electrodes for electrochemical sensing (Speaker: Dr. Nicolai Støvrig, Technical University of Denmark)
Speaker 5 (2:20 pm - 2:40 pm)	Carbon-Electrode Fabrication for Dielectrophoresis Devices Using Advanced SU-8 Processes (Speaker: Shivam Yadav, Clemson University)
Speaker 6 (2:40 pm - 3:00 pm)	Photoluminescence Detection of Nitro Tyrosine and 2,4,6 Trinitrophenol using Garlic Derived NSGQD and Glucose-Derived Carbon Dots (Speaker: Dr. Abu Bakar Siddique, Tecnológico de Monterrey)
Speaker 7 (3:00 pm - 3:20 pm)	Directed nano printing of carbon precursors from bacterial cellulose (Speaker: Melanie Howe, Clemson University)
Speaker 8 (3:20 pm - 3:40 pm)	Investigating the impact of acid hydrolysis on the properties of bacterial cellulose nanocrystals for carbonization (Speaker: Manasi Shah, Clemson University)
Speaker 9 (3:40 pm - 4:00 pm)	Nanofabrication of Thin Films by Two-Photon Polymerization for In Situ TEM: Atomic-Level Insights into Polymer Graphitization (Speaker: Chloé Chemin, Technical University of Denmark)
Speaker 10 (4:00 pm - 4:20 pm)	Multimodal pressure sensors for pulse waveform detection (Speaker: Dr. Borzooye Jafarizadeh, University of Miami)

Academic and Administrative
Deans' Offices:
Architecture: 1223 Dickinson Drive, Building 48-E K-7
Arts and Sciences: 227 Ashe Administration Building P-4
Business: 219 Jenkins Building P-6
Communication: 4025 Wolfson Building R-5
Education and Human Development: 312 Merrick Building P-6
Engineering: 255 McArthur Building P-3
Graduate: 235 Ashe Administration Building P-4
Law: 225 Law School N-4
Music: 125 Messenger Music Executive Building L-5
Nursing and Health Studies: 210 Schwartz Center R-4
Students: 2250 Whitten University Center N-6
President's Office: 230 Ashe Administration Building P-4
Provost's Office: 240 Ashe Administration Building P-5
Rosenstiel School Undergraduate Programs Office: 210 Ungar Building N-3

Arts, Culture, and Performance
Clarke Recital Hall (Weeks Center for Recording and Performance) L-5
Casa Bacardi D-8
Costford Cinema: Dooly Memorial Classroom Building Q-4
Gusman Concert Hall M-5
Herman Ring Theatre M-5
Knight Center for Music Innovation K-5
Lowe Art Museum P-7
Palley Pavilion P-8
Storer Auditorium (Miami Herbert Business School) P-6
Wilder Auditorium (Knight Physics Building) P-2

Athletic, Health, and Wellness Facilities
Alex Rodriguez Park at Mark Light Field (Baseball) E-9
Cobb Stadium (Soccer, Track and Field) F-7
Fieldhouse K-8
Fraser Baseball Building E-9
Greentree Practice Fields G-8
Healthy 'Canes Employee Clinic (McKnight Building) D-10
Hecht Athletic Center G-6
Herbert Wellness Center I-6
Intramural Fields I-5
Kearns Sports Hall of Fame G-7
Knight Sports Complex G-7
Klotz Indoor Batting Facility F-10
The Lennar Foundation Medical Center (UHealth at Coral Gables) H-9
Outdoor Adventures M-8
Schiff Tennis House and Center H-6
Schwartz Center for Athletic Excellence H-7
Soffer Indoor Practice Facility H-8
Spruance Outdoor Gym M-8
Student Health Service (The Lennar Foundation Medical Center) H-9
Swimming Pool/Diving (Whitten University Center) N-6
Volleyball Courts M-8
Watsco Center J-8

Child Care
Canterbury House, Rev. Henry F.S. Minich Child Care Center O-9

Fraternity Houses
Alpha Epsilon Pi E-7
Lambda Chi Alpha E-7
Pi Kappa Alpha G-6
Sigma Alpha Epsilon E-7
Sigma Chi E-8
Zeta Beta Tau E-8

Libraries
Architecture Library: Paul Buisson Architecture Library L-7
Business Library: Judi Prokop Newman Information Resource Center P-6
Law Library: Meyer Law Library (D, G) and Daner Law Library Wing (B) N-3
Main Library: Otto G. Richter Library O-4
Music Library: Marta and Austin Weeks Music Library and Technology Center L-5

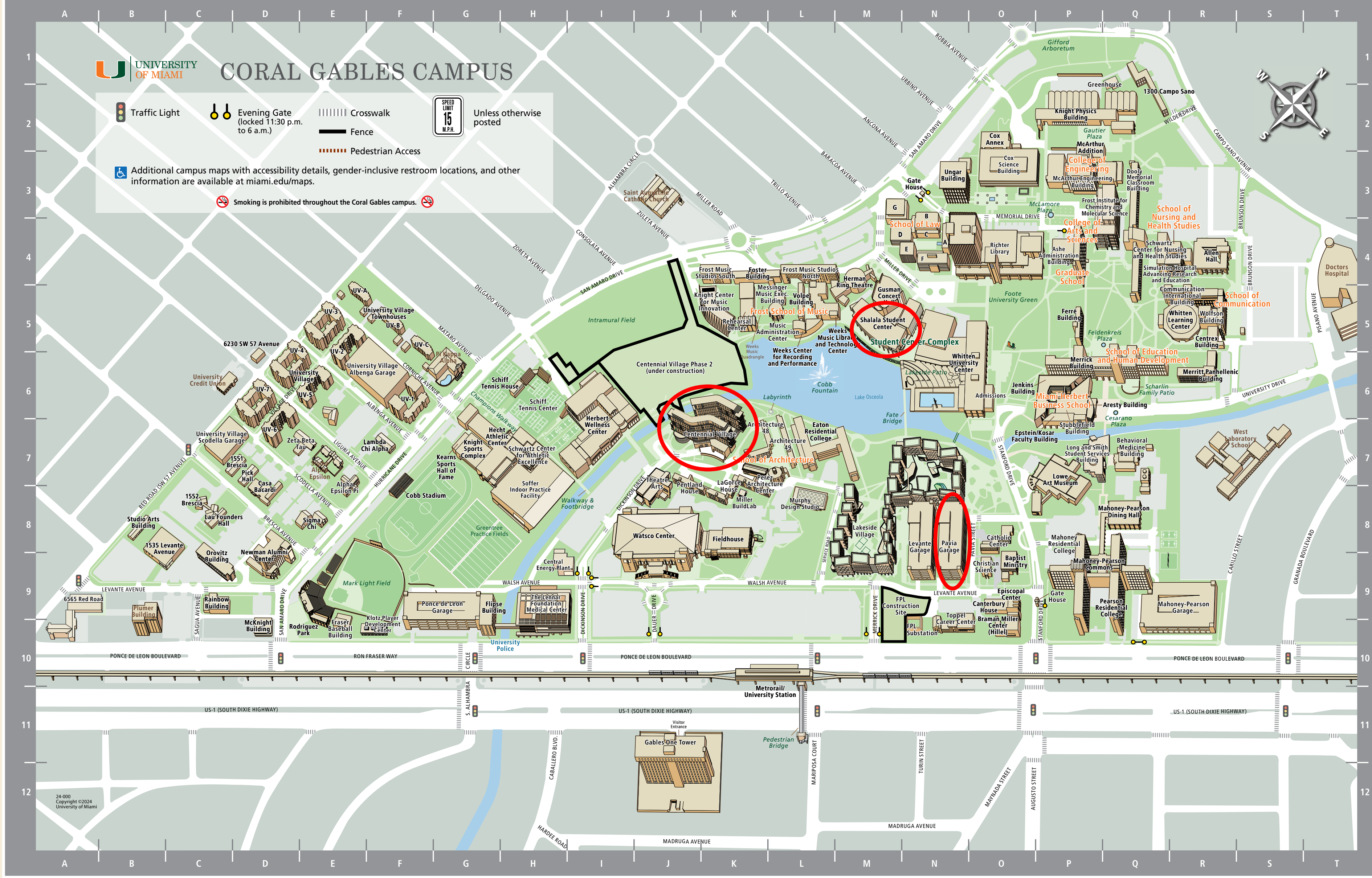
Religious Houses
Baptist Ministry O-9
Braman Miller Center for Jewish Life (Hillel) O-10
Catholic Student Center, St. Augustine Church J-3
Christian Science O-9
Episcopal Center O-9
Wesley Foundation (United Methodist) O-8

Residential Colleges and Student Housing
Eaton Residential College M-7
Centennial Village K-7
Lakeside Village M-9
Mahoney Residential College P-9
Pearson Residential College Q-9
Stanford Residential College J-5
University Village Apartments, Buildings 1-7 D-6

Retail, Dining Halls, and Restaurants
Retail:
Village Market Place: University Village E-6
Whitten University Center:
ATM (Bank of America and University Credit Union) N-6
The Market N-6
U.S. Post Office (Campus Store) N-6
University of Miami Campus Store N-6
Dining Halls:
Centennial Village Dining Hall K-7
Mahoney-Pearson Dining Hall Q-8
Cafes and Restaurants:
Archivist Cafe: Richter Library O-4
Cafe 1925: The Lennar Foundation Medical Center H-9
Corner Deli: Shalala Student Center M-5
Daybreak: Lakeside Village M-9
Einstein Bros. Bagels: Law School N-4
Faculty Club: Whitten University Center N-6
Gym Rat: Herbert Wellness Center I-6
Half Moon Empanadas at Jenkins: Miami Herbert Business School P-6
Instamarket: Shalala Student Center M-5
Hurricane Food Court: Whitten University Center N-6
Rathskeller: Shalala Student Center M-5
Sebastian's Cafe: Newman Alumni Center D-9
Smoothie King: Lakeside Village M-9
SoCal Taco Co.: Whitten University Center N-6
Starbucks: Shalala Student Center M-5

Student Life and Activities
Student Center Complex
(Shalala Student Center, Whitten University Center) N-5
Butler Center for Service and Leadership
LGBTQ Student Center
Multicultural Student Affairs
Orientation and Commuter Student Involvement
Student Activities and Student Organizations
Student Media: Miami Hurricane Newspaper, Distraction Magazine,
This Yearbook, and WVUM-FM
Veterans Resource Center

Student Services
Admission: Whitten University Center N-6
Canner Center for Academic Resources: Long and Smith Student
Services Building P-7
Catholic Center O-9
Counseling Center: Long and Smith Student Services Building P-7
Dean of Students Office: 2250 Whitten University Center N-6
Dining Services: Hurricane Food Court (Whitten University Center) N-6
Disability Services: Long and Smith Student Services Building P-7
English Composition Center: Ferre Building P-5
Housing and Residential Life Office: Eaton Residential College, Room 153 L-7
International Student and Scholar Services: 2275 Whitten University Center N-6
Student Accounts Services: Long and Smith Student Services Building P-7
Student Employment: 2275 Whitten University Center N-6
Student Technology Help Desk: Richter Library O-4
Toppel Career Center N-9
Writing Center: Richter Library O-4



Buildings

1300 Campo Sano	Q-1
1535 Levante Avenue	C-8
1551 Brescia Avenue	C-7
1552 Brescia Avenue	C-8
6230 SW 57th Avenue	D-5
6565 Red Road	A-9

A

Allen Hall, Dean Robert	R-4
Alpha Epsilon Pi	E-7
Alpha Sigma Phi	E-7
Architecture (48)	L-7
Architecture (49)	L-7
Aresty Building, Gerald and Josephine	P-6
Ashe Administration Building, Bowman Foster	P-4

B

Baptist Campus Ministry	O-9
Behavioral Medicine Building	Q-7
Braman Miller Center for Jewish Life (Hillel)	O-10

C

Canterbury House	O-9
Casa Bacardi	D-8
'Canes Central: Long and Smith Student Services Building	P-7
Counseling Center: Long and Smith Student Services Building	P-7
Dean of Students Office: 2250 Whitten University Center	N-6
Dining Services: Hurricane Food Court (Whitten University Center)	N-6
Disability Services: Long and Smith Student Services Building	P-7
English Composition Center: Ferre Building	P-5
Housing and Residential Life Office: Eaton Residential College, Room 153	L-7
International Student and Scholar Services: 2275 Whitten University Center	N-6
Student Accounts Services: Long and Smith Student Services Building	P-7
Student Employment: 2275 Whitten University Center	N-6
Student Technology Help Desk: Richter Library	O-4
Toppel Career Center	N-9
Writing Center: Richter Library	O-4

D

Daner Law Library Wing, Reba Engler (B)	N-3
Doctors Hospital/Baptist Health South Florida	T-4
Dooly Memorial Classroom Building, Oscar E.	Q-3

E

Eaton Residential College, Julian S.	L-7
Episcopal Center	O-9
Epstein/Kosar Faculty Building, David and Bernie	O-7

F

Ferre Building, Antonio	P-5
Fieldhouse	K-8
Filipe Building, Fred C. and Helen Donn	G-9
Foster Music Practice Building, Bertha M.	K-4
Fraser Baseball Building, Ron	E-9
Frost Institute for Chemistry and Molecular Science	Q-3
Frost Music Studios, Patricia L. - South and North	K-4, L-4

G

Gables One Tower	I-11
Gate House/Information Memorial Drive	N-3
McArthur Engineering Building, J. Neville	O-9
Greenhouse	Q-2
Gusman Concert Hall, Maurice	M-4

H

Hecht Athletic Center	G-7
Herbert Wellness Center, Patti and Allan	I-6
Herman Ring Theatre, Jerry	M-4
Hillel (Braman Miller Center for Jewish Life)	O-10

I, J, K

Jenkins Building, George W.	P-6
Kearns Sports Hall of Fame, Thomas N.	G-7
Klotz Indoor Batting Facility	F-10
Knight Center for Music Innovation	K-5
Cox Science Building, James M. Jr.	O-3
Credit Union	C-6
Knight Sports Complex, James L.	G-7

L

LaGorce House	M-9
Lakeside Village	M-9
Lambda Chi Alpha	E-7
Lau Founders Hall, Marion and Ed	C-8
Law Classroom Building (E, F)	N-4
Learning Center, Whitten (LC)	R-5
Levante Garage	N-8
The Lennar Foundation Medical Center (UHealth at Coral Gables)	H-9
Long and Smith Student Services Building, Harold Jr. and H.T.	P-7
Lowe Art Museum, Joe and Emily	P-7

M

Mahoney Residential College, Daniel J.	P-9
Mahoney-Pearson Commons	P-9
Mahoney-Pearson Dining Hall	P-8
Mahoney-Pearson Garage	Q-9
McArthur Addition, J. Neville	P-2
McArthur Engineering Building, J. Neville	P-3
McKnight Building, Evelyn F. and William L.	D-10
Memorial Classroom Building, Oscar E. Dooly	Q-3
Merrick Building, Solomon G.	P-6
Merritt Panhellenic Building, Mary B.	R-6
Messenger Music Executive Building	L-4
Metrorail/University Station	K-10
Meyer Law Administration (A, C)	N-4
Meyer Law Library (D, G)	M-3
Miller BuildLab	K-8
Murphy Design Studio	L-8
Music Administration Building	K-5

N, O, P

Newman Alumni Center, Robert and Judi Prokop	D-8
Orovitz Building, Max	C-8
Pavia Garage	N-8
Pearson Residential College	Q-9
Perez Architecture Center, Jorge M.	K-7
Pi Kappa Alpha	E-6
TBD	E-6

Pick Hall, Albert D-7
Plumer Building B-9
Ponce de Leon Garage F-9

R

Rainbow Building	C-9
Rehearsal Center	K-5
Richter Library, Otto G.	O-4
Rodriguez Park, Alex	E-9
Rosborough Tower, Melanie R. (Stanford Residential College)	J-6

S



St. Augustine Catholic Church/Student Center	J-3
Schiff Tennis Center, Neil	H-6
Schiff Tennis House	H-6
Schwartz Center for Athletic Excellence, Theodore G. and Todd G.	H-7
Schwartz Center for Nursing and Health Studies, M. Christine	Q-4
Sigma Chi	E-8
Silvers and Rubenstein Hall	N-4
Simulation Hospital Advancing Research and Education	Q-4
Stanford Residential College-Commons, Henry King	J-5
Stubblefield Classroom Building, Elsa and William	P-6
Student Center, Donna E.	M-5
Soffer Indoor Practice Facility	H-8
Studio Arts Building	B-8

T, U, V

Theatre Arts Building	J-8
Toppel Career Planning and Placement Center, Patricia and Harold	N-9
University Center, Whitten (UC)	N-6
Ungar Building, Arthur A.	N-3
University Village, Buildings 1-7	D-6
University Village Scodella Garage	E-6
University Village Scodella Garage	C-7
University Village Townhouses, Buildings A-C	F-5
Volpe Classroom Building, Arnold	L-5

W, X, Y, Z

Walsh Tower, Judge William E. (Stanford Residential College)	K-5
Watsco Center	J-8
Weeks Center for Recording and Performance, L. Austin	L-5
Weeks Music Library and Technology Center, Marta and Austin	L-5
West Laboratory School	R-7
Whitten Learning Center, George E. (LC)	R-7
Whitten University Center, Norman A. (UC)	O-6
Wolfson Building, Frances L.	R-5

Download University of Miami's Mobile App
Scan the QR code above with your smartphone to download UMiamiMobile. You'll have instant access to campus maps, parking information, shuttle schedules, news and events, and much more.

University of Miami Police 305-284-6666
Parking and Transportation 305-284-3096
University of Miami Main Number 305-284-2211

miami.edu