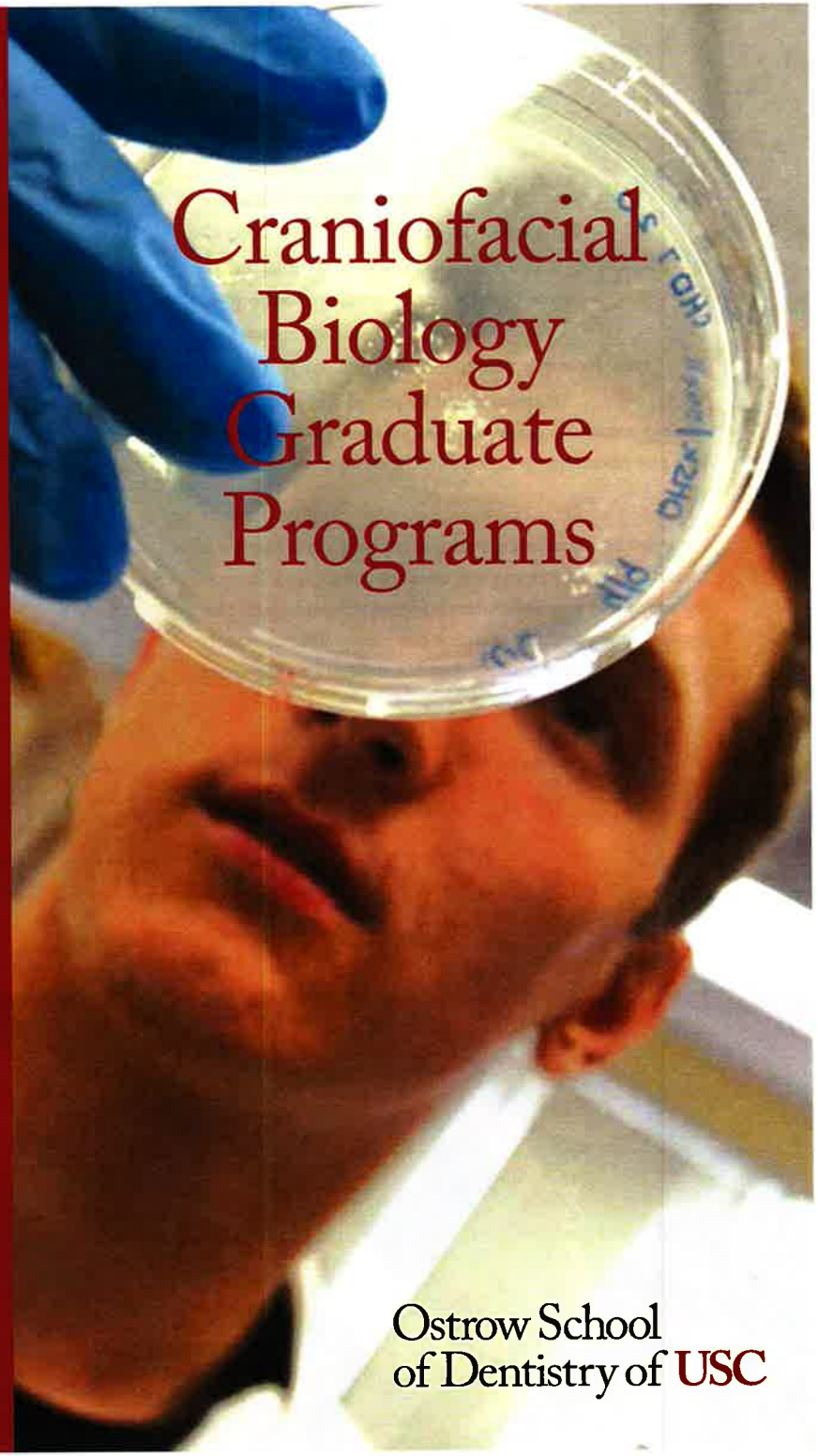
Ostrow School
of Dentistry of USC

925 W 34th St.
Los Angeles, CA 90089
(213) 740-2841

USC University of
Southern California

Craniofacial Biology Graduate Programs



Ostrow School
of Dentistry of USC

Craniofacial Biology at the Ostrow School of Dentistry of USC

Craniofacial biology has both clinical and academic importance in stem cell regeneration, infectious diseases, public health, birth defects such as cleft palate and much more. The Ostrow School of Dentistry postdoctoral, PhD and MS programs in craniofacial biology train students to become advanced research scientists and the next generation of leaders in oral health-related research. Graduates will possess the qualifications and expertise to become productive faculty members at leading universities and senior scientists in various academic institutions or industrial settings.

CURRICULUM

Attention is given to the nation's health-related needs and disease prevention through collaborations with the Keck School of Medicine of USC, Children's Hospital Los Angeles and USC's Rossier School of Education. With support from the Keck School of Medicine's program in Biomedical and Biological Sciences (PIBBS), we provide a flexible, stimulating and unique curriculum.

Each degree program requires didactic courses of instruction, including classes and seminars in craniofacial genetics and development, bioethical issues, statistics and scientific writing. Graduation for both the MS and PhD requires a minimum GPA of 3.0 and satisfactory completion of a research project.

The curriculum focuses primarily on development and disease as well as prokaryotic and eukaryotic genetics. Significant emphasis is placed on understanding:

>> Normal and pathologic craniofacial development
>> Genetic disease
>> Biomineralization of dental hard tissues
>> Biosynthetic and biocompatible materials development
>> Stem-cell biology and tissue engineering
>> Dental pathologies affecting the dentition and surrounding tissues

Research

Participating in research is an immensely powerful tool for learning and discovery. From developing new techniques and materials to understanding the intricacies of oral, facial and cranial development, craniofacial research is intimately connected to improving people's lives.

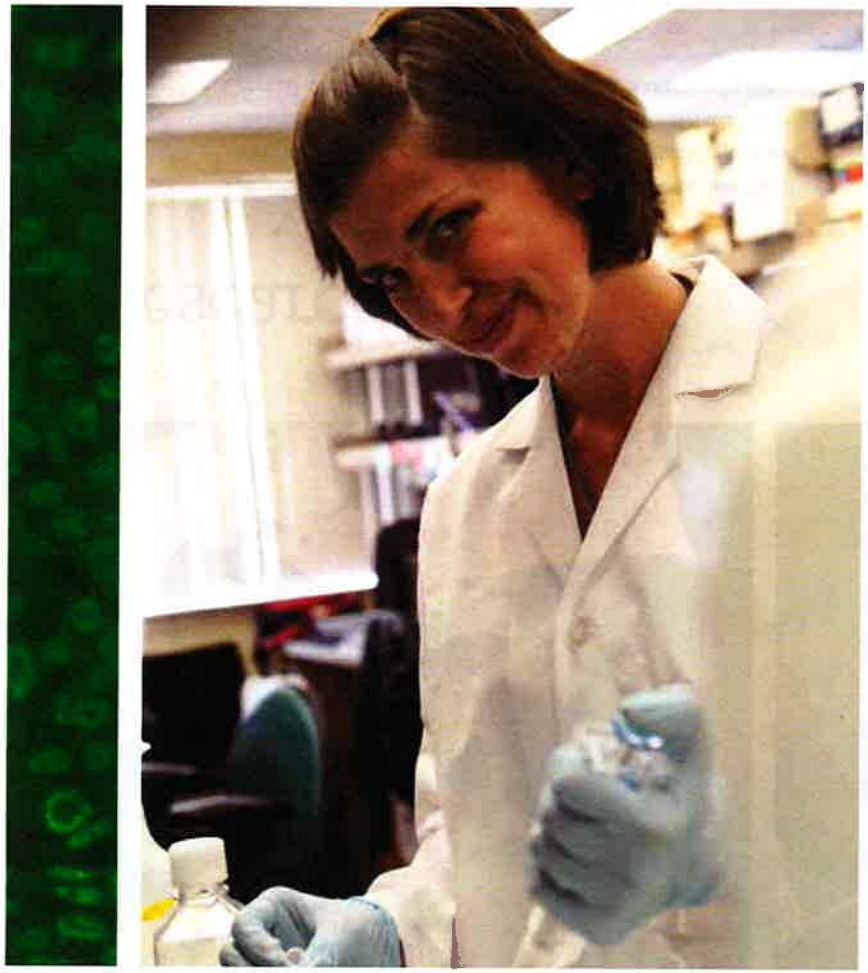
The collaborative environment within the school and across the university stimulates a multidisciplinary approach and interactive experience. Graduate students draw from a broad array of resources surrounding the many health science institutions in Los Angeles and Southern California including three major teaching hospitals located on USC's downtown health sciences campus.

The Ostrow School of Dentistry's technologically advanced laboratories have been the training ground for hundreds of scholars from around the world. Faculty members maintain national and international collaborations with renowned institutions such as the University of Peking (China), the University of Sydney (Australia) and the Universidad Complutense de Madrid (Spain).

The Ostrow School of Dentistry has a strong research foundation, ranking high among dental schools that receive funding from the National Institute of Health (NIH) and the National Institute of Dental and Craniofacial research (NIDCR). Faculty members regularly present their work at national and international conferences and publish in numerous peer-reviewed journals.

State-of-the-art research is conducted over a wide range of disciplines that include but are not limited to:

>> Embryonic stem cell research
>> Tissue engineering
>> Neuroscience and physiology
>> Genetics and gene regulation
>> Extracellular matrix
>> Biomaterials
>> Oral, microbial and mucosal disease
>> Cancer and molecular medicine



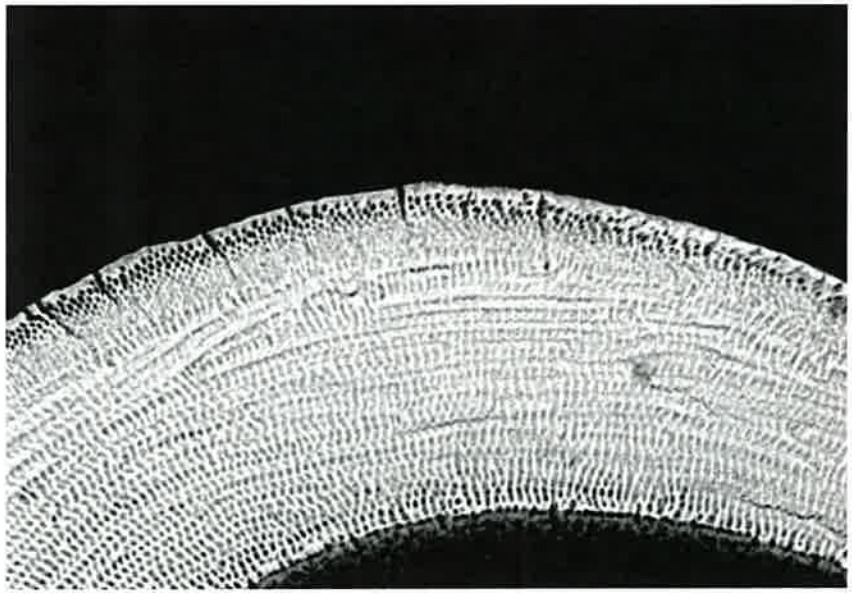
Master of Science in Craniofacial Biology

The Master of Science in Craniofacial Biology degree offers the clinician and non-clinician (DDS, MD, equivalent, or someone with an undergraduate degree and interest in craniofacial development) the opportunity to obtain basic science and/or clinical research knowledge and skills.

The MS in Craniofacial Biology degree may be completed concurrently with certificate specialty training. If you are a resident in an Ostrow School of Dentistry specialty program, please consult with your program director about pursuing an MS during your residency.

Students learn to critically evaluate published scientific information and methodologies and can apply a high level of scientific understanding to their chosen field of study. Training includes research into the causes of craniofacial diseases and anomalies, as well as normal development and function.

In addition to the required didactic coursework, students are required to identify a research topic, generate primary data, critically evaluate the significance of this data and write a thesis covering the topic. Progress is monitored and assessed by the student's thesis committee, which consists of at least three full-time tenured or tenure-track USC faculty members with diverse research backgrounds.



Doctor of Philosophy in Craniofacial Biology

The PhD in Craniofacial Biology degree provides health science-oriented training for the professional with interests in academic and clinical aspects of craniofacial biology. Students will manage federally funded projects in a university environment or prepare for a variety of positions in private industry. Graduates are in a position to become academic faculty members and independent scientists who can establish and lead their own research programs.

Students will become conversant in all areas of craniofacial biology, able to conceptualize research questions across several levels of analysis. The curriculum provides balance, exposing students to a broad range of disciplines within craniofacial biology and imparting the advanced skills necessary to excel in a specialized area.

Students must complete a dissertation project, a unique and significant research investigation with the guidance of a craniofacial biology faculty member as their primary research advisor. Students are required to identify a project that is novel, current and scientifically sound for a topic that covers multiple research methodologies and is likely to add knowledge to a particular field or discipline. PhD research projects are expected to be of exceptional quality and publishable in high-impact, peer-reviewed journals.

The progress of PhD students is monitored and assessed by their Thesis Committee, which consists of at least five full-time USC tenured or tenure-track faculty members with diverse research backgrounds.

Above, left: Mouse tooth enamel microscopy courtesy of Dr. Michael Paine.

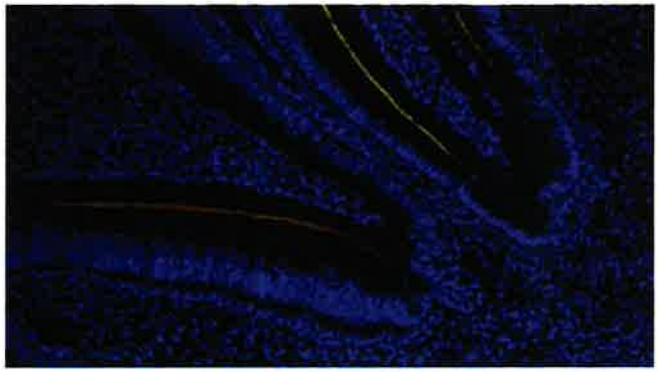
Postdoctoral Fellowships

Postdoctoral fellows will thrive in an integrated curriculum that includes mentoring, scientific advancement, academic career development, publication and grantsmanship. Training is tailored to each candidate's interests focusing on skeletal, craniofacial and oral biology.

Students have the opportunity to work with one or more of 40 USC faculty mentors from the Ostrow School of Dentistry, Keck School of Medicine and Children's Hospital Los Angeles. Postdoctoral coursework is taught through symposiums, seminars, clinical research centers and collaborative research.

Faculty fully recognizes the importance of imparting their scientific knowledge to prepare bright, motivated students for a future in translational biomedical sciences related to craniofacial development, oral health, disease and treatments. Mentors are committed to helping students attain the skills necessary to successfully transition from scholar to independent investigator working in an academic or corporate environment. Most postdoctoral fellows can look forward to their first faculty appointment or position during or soon after completing the supported training fellowship.

Above, right: Neural crest cell transplants in avian embryos courtesy of Dr. Amy Merrill-Brugger.



National Institutes of Health Training Grant

The Ostrow School of Dentistry seeks promising investigators to participate in the school's National Institutes of Health (NIH) training grant. The primary objective of the grant is to provide PhD candidates and postdoctoral fellows with a broadened, interdisciplinary experience in a research-intensive university setting. At any one time, the training grant will support three PhD students and five postdoctoral fellows in:

>> craniofacial and oral biology
>> biomineralization
>> cell biology
>> clinical trials/experimentation
>> developmental biology
>> cytokine biology
>> biomaterials
>> tissue engineering
>> neuroscience
>> immunology
>> microbial molecular genetics
>> periodontology

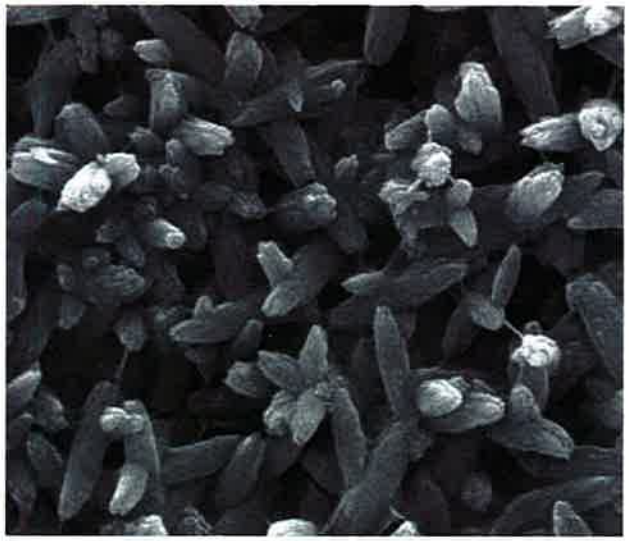
The training grant prepares recipients to become next-generation leaders and cutting-edge academic dental researchers who are prepared to generate new discoveries that identify, prevent, treat and cure diseases and abnormalities of the oral and craniofacial complex. The goal of this program is to help meet the growing need for research scholars in US dental schools and to produce competent, independent scientists who are able to initiate and maintain funded research programs that will improve world health.

PhD training and non-degree postdoctoral fellowship focuses primarily but not exclusively on scientists who seek advanced training in all aspects of oral biology and oral pathology.

STIPENDS AND AWARDS

Full stipend, tuition award, health insurance and other benefits are available to support PhD candidates and postdoctoral fellows for one to two years during their training. Postdoctoral scholars are generally supported by the research funds of individual faculty members in addition to the NIH training grant. Accepted students are also eligible to receive support for supplies and travel to research related seminars.

Above, center: Stem cell research microscopy courtesy of Postdoctoral Associate Victoria Gallon



How to Apply

MS AND PHD PROGRAMS

The Craniofacial Biology graduate programs are administered by the USC Graduate School. Admitted students generally have a strong background in biological sciences or chemistry. The USC Catalogue provides additional information about specific application requirements and courses that must be completed in order to graduate with an MS or PhD in craniofacial biology. Visit the USC Catalogue at catalogue.usc.edu.

Requirements for graduate admission include:

>> Statement of Purpose.

>> Three letters of recommendation (usually from professors who are familiar with your research experience).

>> Original transcripts from all schools attended.

>> GRE scores no older than 5 years.

>> Original TOEFL scores (if English is not your native language).

>> The department requires a grade point average (GPA) of 3.0 on a 4.0 scale, and grades of A or B in science courses are expected.

>> No interview is required; however, interviews may be conducted by phone as needed.

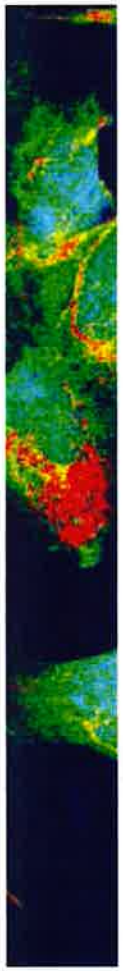
The deadline for priority consideration is Dec. 1 for PhD and MS applicants seeking admission into the following year's fall semester. Please refer to the USC Graduate School's Dates and Deadlines (www.usc.edu/admission/graduate/apply/datesdeadlines.html).

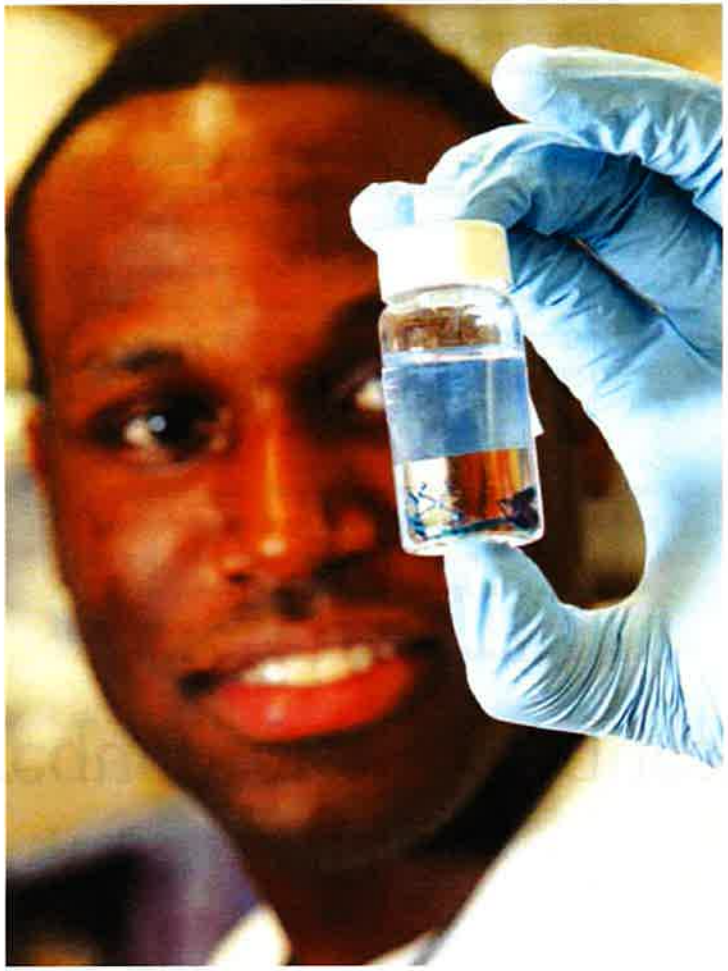
Begin your online application through the USC Graduate School at www.usc.edu/admission/graduate/.

POSTDOCTORAL FELLOWSHIPS

If you are interested in becoming a postdoctoral fellow at the Ostrow School of Dentistry of USC, please send a statement of research and curriculum vitae to usccby@usc.edu.

Above: Biomaterials science microscopy courtesy of Dr. Janet Oldak.





Financial Aid

The Ostrow School of Dentistry of USC is committed to helping graduate students identify the resources they need to obtain a dental education. Financial aid at USC is awarded on the basis of determined financial need and the availability of funds. Aid may be in the form of a scholarship or grant, loans and/or student employment.

For accepted PhD students, tuition, health and dental benefits are fully covered by either the university or the Ostrow School of Dentistry in addition to a stipend or living allowance. The stipend is based on the acceptable cost of living in Los Angeles and may vary from year to year as dictated by the University.

For MS students, there is currently no default mechanism to cover program costs. Applicants are required to show proof that they can assume financial responsibility of all costs associated with the program.

To help in your planning, you may wish to review the USC Financial Aid website at www.usc.edu/admission/fa/ or contact the Ostrow School of Dentistry Office of Financial Aid at (213) 740-2841 or uscsdadm@usc.edu.

Frequently asked questions

1. What does the admissions committee look for when evaluating applications?

All applications are evaluated individually in search of the most promising students in terms of intellectual distinction and professional merit in the sciences. Beyond this, the committee looks for academic trends, documented potential and evidence of good character.

2. What exams are needed for admission?

The graduate school requires all applicants to take the General Test of the Graduate Record Examination (GRE). Test scores that are more than five years old at the time of application may not be accepted.

The Test of English as a Foreign Language (TOEFL) is required for non-native English speakers to test their ability to use and understand English in an academic setting.

3. Does USC give preference to California residents?

As a private institution, USC actively seeks a geographic and cultural mix of students who are selected without regard to residency. There are no quotas or targets in the admissions process. Applicants at all levels of scientific experience whose unique perspectives will enhance the community are welcomed.

4. Do I need a Dental Degree (DDS) to apply?

No. A DDS is not a prerequisite for admission; however, during the past 10 years many accepted students have earned a DDS and/or additional advanced degrees.

5. Who serves on the admissions committee?

The admissions committee is composed of appointed members of the full and part-time faculty, alumni, administrators and professional staff.

6. When is the application due?

The application is due December 1 for admittance the following fall.

7. If I applied to USC previously, am I guaranteed admission next year?

No. All reapplying applicants must complete the entire application and review process again.

8. Does USC accept coursework completed at a US accredited university for credit towards a USC degree?

Yes, provided the courses fit the current curriculum content for the program. Restrictions may apply and will be determined upon acceptance.

9. Does USC accept coursework completed at a foreign university for credit towards a USC degree?

No, all coursework must have been taken at an accredited college or university within the US or Canada.

10. May I take coursework online?

No. At this time the program does not offer any on-line courses or labs.

11. Can I shadow a current student?

Yes. If you would like to shadow a current student or get a closer look at one of the programs, please contact the Craniofacial Biology program at usccby@usc.edu.

For more program information, please visit the Ostrow School of Dentistry Craniofacial Biology homepage at dentistry.usc.edu/programs/graduate/

The Ostrow School of Dentistry of USC reserves the right to modify or change admissions standards or requirements any time without prior notice. The information contained herein is for planning purposes only and is not to be regarded as creating a binding contract between the student and the dental school.