MS in Biomedical Visualization

Admission Requirements

Applications are considered on an individual basis. In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

- **Baccalaureate Field** No restrictions. All prerequisite course work must be completed with a grade of C or higher. Prior academic work must include:
  a. General or introductory chemistry.
  b. Comparative Vertebrate Anatomy and Human Physiology or Anatomy and Physiology I and II with dissection.
  c. Additional science courses must include two or more of the following (at least one of these courses must be an upper-division course): biochemistry, cell biology, developmental anatomy (vertebrate embryology), genetics, histology, immunology, molecular biology, neuroanatomy, pharmacology, microbiology, neuroscience, neurobiology, physical/biological anthropology, or pathology.
  d. One or more courses in 2-D vector, 2-D raster, 3-D modeling, 2-D/3-D animation, interactive or motion media, or computer programming is required. Course work in drawing, life drawing, painting, and digital imaging is highly recommended. Course work in computer programming is recommended for applicants interested in interactive media.
- **Grade Point Average** At least 3.00/4.00 for the final 60 semester (90 quarter) hours of undergraduate study and for all cumulative graduate work previously taken.
- **Transcripts** Submit unofficial copies of official transcripts from institutions where degrees were earned, and transcripts from all colleges and universities attended within the last eight years. A link to upload will be provided by the Office of Admissions and Records five to seven days after application is completed.
- **Tests Required** GRE General Test that includes Verbal, Quantitative, and Writing assessment. Preference will be given to applicants with a combined Quantitative and Verbal score above 300. Test scores are required for all applicants.
- **Minimum English Competency Test Score**
  - **TOEFL** Applicants taking the iBT Internet-based TOEFL must have a minimum score of 95, with sub-scores of Reading 24, Listening 22, Speaking 24, and Writing 24. Applicants taking the New Paper-Based TOEFL (after August 2018) must have a minimum score of 60, with sub-scores of Reading 19, Listening 17, Writing 21. If the applicant has taken the Institutional Testing Paper-Based TOEFL (prior to August 2018), minimum scores in the range of 585–600 will be considered; in addition, the applicant must take the Test of Written English and submit scores in the range of 5–6. **OR**
  - **IELTS** 7.0, with sub-scores of 6.5 for all four sub-scores, **OR**
  - **PTE-Academic** 54, with sub-scores of Reading 51, Listening 47, Speaking 53, and Writing 56.
- **Letters of Recommendation** Three required from instructors or employers. Letters must be on letterhead and can be uploaded to the OAR site.
- **Personal Statement** The statement should address the applicant’s goals for graduate study and career development.
- **Other Requirements** A personal interview with departmental faculty is required. Additionally, a portfolio review by departmental faculty is required. A portfolio of 20 original images must be submitted. The 20 original images must include six full-figure drawings (not paintings) from the nude model that include gestures, short poses and long poses; one drawing of the human hand; one portrait drawing; one black and white tone composition from observation using all basic forms: cube, cone, cylinder, pyramid, and sphere; one still life drawing or painting in color that includes both organic and geometric forms which demonstrates form, volume, texture, and convincing spatial relationships. These 10 images must be created from direct observation, not photographic references. The additional 10 images may include general drawing (pages from sketchbooks encouraged), figure drawing, color media, digital media, graphic design, and sculpture. Medical subject matter images are discouraged.
- **Deadlines** Application deadlines (http://grad.uic.edu/deadlines) for this program are listed on the Graduate College website.

Degree Requirements

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

- **Minimum Semester Hours Required** 49–52.
- **Course Work**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td><strong>Required Core Courses</strong></td>
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<tr>
<td>ANAT 441</td>
<td>Gross Human Anatomy</td>
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<tr>
<td>BHIS 405</td>
<td>Medical Sciences and Human Pathophysiology</td>
</tr>
<tr>
<td>BHIS 499</td>
<td>Information Sources in Biomedical &amp; Health Information Sciences</td>
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<td>BHIS 500</td>
<td>Strategic Inquiry in Biomedical and Health Information Sciences</td>
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<tr>
<td>BHIS 595</td>
<td>Seminar in Biomedical and Health Information Sciences</td>
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<td>BVIS 502</td>
<td>Clinical Sciences for Biomedical Visualization</td>
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<tr>
<td>BVIS 505</td>
<td>Visual Learning and Visual Thinking I</td>
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<tr>
<td>BVIS 510</td>
<td>Anatomical Visualization</td>
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<tr>
<td>BVIS 518</td>
<td>Web Development</td>
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<td>BVIS 552</td>
<td>Graphic Design</td>
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<tr>
<td>BVIS 575</td>
<td>Business Practices</td>
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<td>BVIS 595</td>
<td>Seminar in Biomedical Visualization</td>
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<td><strong>And two additional required science courses from the following lists:</strong></td>
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<td><strong>At least one of the following:</strong></td>
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<tr>
<td>ANAT/OSCI 544</td>
<td>Advanced Craniofacial Anatomy</td>
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<td>BVIS 560</td>
<td>Molecular Pharmacology for Biomedical Visualization</td>
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<td>GEMS 515</td>
<td>Receptor Pharmacology and Cell Signaling</td>
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<tr>
<td>NEUS 403</td>
<td>Human Neuroanatomy</td>
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<tr>
<td>NEUS 502</td>
<td>Foundations of Neuroscience II</td>
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<tr>
<td><strong>At least one of the following:</strong></td>
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GEMS 501  Biochemistry  
GEMS 502  Molecular Biology  
GEMS 503  Cell Biology  
NEUS 501  Foundations of Neuroscience I  

**Selectives**  
Select 10 hours from the following:  
- ART 452  Informational Aesthetics I  
- ART 453  Informational Aesthetics II  
- ART 454  3D Space I: Modeling  
- ART 455  3D Space II: Animation  
- ART 457  Interactive 3D  
- BVIS 500  Biomedical Visualization Techniques  
- BVIS 519  Modeling I  
- BVIS 520  Modeling II  
- BVIS 521  Modeling III  
- BVIS 522  Illustration Techniques  
- BVIS 530  Surgical Illustration  
- BVIS 535  Visual Learning and Visual Thinking II  
- BVIS 536  Interactive Visualization  
- BVIS 537  Advanced Interactive Visualization  
- BVIS 538  Medical Legal Visualization  
- BVIS 541  Animation I  
- BVIS 542  Animation II  
- BVIS 543  Animation III  
- BVIS 544  Animation IV  
- BVIS 546  Virtual Reality and Stereography in Biomedical Visualization  
- BVIS 548  Advanced Illustration Techniques  
- BVIS 562  Advanced Graphic Design  
- BVIS 580  Practicum in Biomedical Visualization  
- BVIS 594  Special Topics in Biomedical Visualization  
- BVIS 596  Independent Study  

Additional courses may be taken with the approval of advisor and instructor if in another college.

- **Thesis, Project, or Course-Work-Only Options**  
  Thesis or project required. No other options are available.  
  - **Thesis**: Students must earn at least 7 hours in BVIS 598.  
  - **Project**: Students must earn at least 4 hours in BVIS 597.

- **Other Requirements**  
  - **Continuous Registration**: Students who have completed all degree requirements except the thesis/project must register for zero semester hours to maintain continuity of registration.