



**First Ever Mayo Clinic 3D
Printing in Medical Practice!**

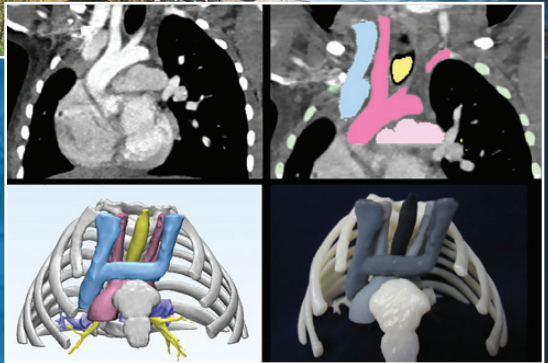
DEPARTMENT OF RADIOLOGY

Collaborative 3D Printing in Medical Practice



February 7-8, 2015

Four Seasons Resort
Scottsdale at Troon North
Scottsdale, Arizona



REGISTER ONLINE TODAY!

www.mayo.edu/cme/radiology

COURSE DESCRIPTION

Collaborative 3D Printing in Medical Practice is a post graduate course designed to update and introduce the diagnostic radiologist, surgeon, biomedical engineer, and administrators on uses of 3D printing of anatomic models. Creating accurate models of the anatomy contributes to strong postoperative results and increases surgical confidence in complex cases. Segmenting and printing techniques and practical application in medical care, research and education will be reviewed. Surgeons from various disciplines will share their Mayo Clinic experiences detailing the benefits of the models to their surgical practice.

COURSE LEARNING OBJECTIVES

Upon conclusion of this program, participants should be able to:

- Review what 3D printing is and how it can be applied to imaging data to create anatomic models
- Describe the important steps in creating a clinically collaborative 3D printing lab
- Review the role anatomic models play in pre-operative surgical planning in urologic, orthopedic, thoracic and cardiac complex patients

Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures which may be discussed or taught in this course.

INTENDED AUDIENCE

The *Collaborative 3D Printing in Medical Practice* course is designed for the surgeon, radiologist, and engineer interested in 3D modeling and printing.

CREDIT

Mayo Clinic College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Mayo Clinic College of Medicine designates this live activity for a maximum of 13.5 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Other Health Care Professionals

A certificate of attendance will be provided to other health care professionals for requesting credits in accordance with state nursing boards, specialty societies, or other professional associations.

GRANTS AND EXHIBITS

At the time of this printing, a complete listing of commercial supporters (financial or in-kind) was not available. Appropriate acknowledgment will be given to all supporters at the time of the meeting.



DATE AND LOCATION

The *Collaborative 3D Printing in Medical Practice* course will be held **Saturday, February 7 – Sunday, February 8, 2015** at the Four Seasons Resort Scottsdale at Troon North, located in sunny Scottsdale, Arizona. The Four Seasons Resort Scottsdale at Troon North sits high in the Sonoran Desert, nestled quaintly in the cooling foothills of Pinnacle Peak. The property offers sun-drenched weather, astonishing scenery, and the challenge of playing the Troon North Golf Course.



REGISTRATION

To register online, visit www.mayo.edu/cme/radiology, or complete the attached registration form and return by mail or fax. The registration fee includes tuition, comprehensive course syllabus on flash drive, continental breakfasts, break refreshments, lunch on Saturday (for meeting participants only), and a welcome reception.

Although it is not Mayo School of Continuous Professional Development (CPD) and/or Mayo Clinic Department of Radiology CME policy to limit the number of registrants for a course, conference room facilities may necessitate closing of enrollment; **therefore, early registration is advised.** A letter of confirmation will be sent upon receipt of payment and completed registration form. Please present the confirmation letter when checking in at the meeting registration desk.

For additional information, contact:

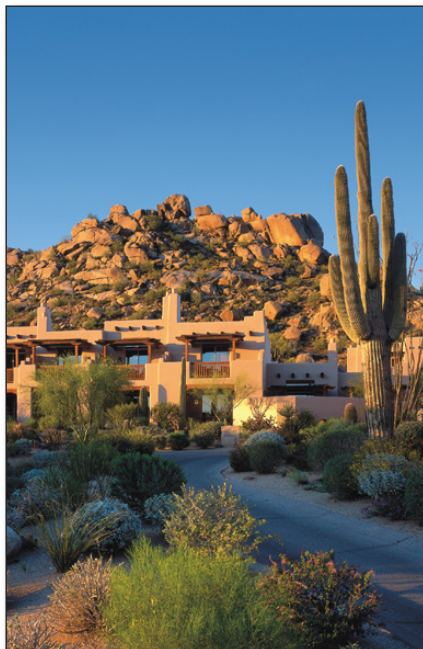
Mayo Clinic Department of Radiology
Continuing Medical Education Office
Mayo, W-2
200 First Street SW
Rochester, MN 55905

Website: www.mayo.edu/cme/radiology
Email: radiologycme@mayo.edu
Phone: 866-246-1581
Fax: 507-266-3061

CANCELLATION POLICY

If you cancel your participation in this course, your registration fee, less a \$75 administrative fee, will be refunded when written notification is received by Department of Radiology CME Office before January 23, 2015 (radiologycme@mayo.edu or fax #: 507-266-3061). **No refunds will be made on or after January 23, 2015.** Canceled registrations are non-transferable.

Mayo School of CPD and/or Mayo Clinic Department of Radiology CME reserve the right to cancel or postpone any course due to unforeseen circumstances. In the unlikely event Mayo School of CPD and/or Mayo Clinic Department of Radiology CME must cancel or postpone this course, Mayo Clinic Department of Radiology CME will refund the registration fee, but is not responsible for any related costs, charges, or expenses to participants, including fees assessed by airline/travel/lodging agencies.



TRAVEL

The Four Seasons Resort Scottsdale at Troon North is located 35-40 minutes from the Phoenix Sky Harbor International Airport. The Scottsdale Municipal Airport is only ten miles from the resort and handles private and charter aircraft. The Four Seasons Resort Scottsdale at Troon North does NOT provide complimentary airport shuttle service, but other transportation options are available. Several rental car companies serve the Scottsdale area.



Travel arrangements are the sole responsibility of the individual registrant.

LODGING ACCOMMODATIONS

The Four Seasons Resort Scottsdale at Troon North is a AAA Five Diamond resort located in the Sonoran Desert. The property includes 210 guest rooms and suites within its 25 casitas. Each guest room or suite is accented by its own private terrace or balcony so guests may surround themselves with the magnificent desert views.

Guests of the resort may enjoy the privilege of playing golf on the championship courses of the Troon North Golf Club, relaxing in the sanctuary of the Four Seasons Spa, or enjoying a day poolside sunning on the landscaped deck or seeking shade in one of the resort's cabanas.

Guest rooms have been reserved for attendees and their guests with a special course rate at the Four Seasons Resort Scottsdale at Troon North, 10600 East Crescent Moon Drive, Scottsdale, Arizona, 85262. Reservations can be made by calling 888-207-9696. Please identify yourself as a participant in the Mayo Clinic 3D Printing course when making your reservation.

Run of House Casita Guest Rooms - \$349

Group room rates are based on single/double occupancy. There will be a \$30 plus tax charge for each additional person occupying the room beyond double occupancy, with a maximum of 4 total persons (2 adults and 2 children) allowed in each room. In order to receive the special rate, reservations must be made prior to **December 21, 2014** or until the room block is sold out.

Please note that rooms are limited and early registration is strongly encouraged to avoid disappointment.

Hotel check-in time is 4:00 p.m. on the day of arrival. Room assignments prior to this time are subject to availability. Check-out time is before 12:00 p.m. on the day of departure. If any room is not vacated by this time, individuals will be charged a late charge of 50% of the room rate, plus tax and administrative resort fees.



General Information

A daily taxable resort fee, which is currently \$30 per room, will be charged on all guest rooms. The resort fee is subject to change, and includes the following: daily premium speed internet access in guest rooms for up to 4 devices, self-parking, local phone calls, coffee and tea, and morning pastry and coffee in the lobby.

Overnight valet parking charges are taxable at \$29 per vehicle, per night (alternative fuel vehicles receive complimentary overnight valet parking). Parking charges are subject to change.

Lodging arrangements are the sole responsibility of the individual registrant.

Mayo Clinic Department of Radiology CME is not responsible for expenses incurred by an individual who is not confirmed and for whom space is not available at the meeting. Costs incurred by the registrant such as airline or hotel fees or penalties are the responsibility of the registrant.

SOCIAL PROGRAMS

Welcome Reception – Saturday, February 7, 2015

Attendees and their guest(s) are cordially invited to join the course faculty for the Welcome Reception on Saturday, February 7, 2015. This casual reception welcomes you to Scottsdale, Arizona, officially opens the course, and offers you the perfect opportunity to make connections with existing and new colleagues. Pre-registration is requested.

RECREATION/LEISURE ACTIVITIES

Golf – Only one of eight facilities in all of North America to earn Golf Digest’s prestigious Five-Star Facility Award, the Troon North Golf Club is truly “the crown jewel of desert design,” says Brian McCallen, senior editor at Golf Magazine. The Troon North Golf Club is a 36-hole facility that grants players access to both the Monument and Pinnacle Courses. A unique partnership exists between the Troon North Golf Club and the Four Seasons Resort Scottsdale at Troon North. For more information, please call 1-480-585-5300.



Spa – The Four Seasons Spa offers guests a haven of relaxation as its services are inspired by the region’s native traditions and often include unique products from local plant life such as desert sage and jojoba. Spa treatments combine age-old healing rituals with new, modern therapies from around the world. Escape to the spa and indulge in a multitude of featured services including Thai and Shiatsu massage, body treatments of soothing sage wraps or jojoba and prickly pear polishes, a desert nectar facial, or a Sedona earth clay body mask. A full-service salon is also available at the spa. You may contact the spa at 1-480-513-5145.

FACULTY

Course Directors

Jane M. Matsumoto, M.D.
Jonathan M. Morris, M.D.
Terri J. Vrtiska, M.D.

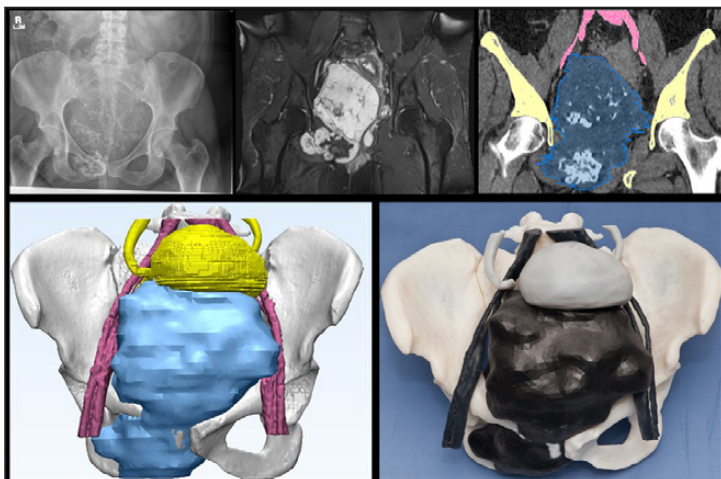
Guest Faculty

David Frakes, Ph.D.

Mayo Faculty

Thomas A. Foley, M.D.
Bernard F. King, M.D.
Bruce R. Kline
Joel L. Kuhlmann
Bradley C. Leibovich, M.D.
Jane M. Matsumoto, M.D.
Kiaran P. McGee, Ph.D.
Christopher Moir, M.D.
Jonathan M. Morris, M.D.

Linda E. Nesberg
Peter S. Rose, M.D.
Adam J. Schwartz, M.D.
John A. Skinner, M.D.
Daniel B. Spoon, M.D.
Anthony A. Stans, M.D.
Terri J. Vrtiska, M.D.
Nicholas N. Wetjen, M.D.
Dennis Wigle, M.D., Ph.D.
Michael J. Yaszemski, M.D., Ph.D.

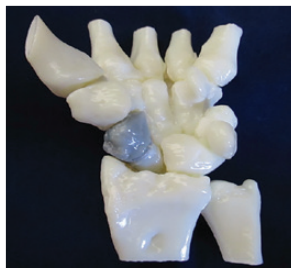


FACULTY DISCLOSURE

As a provider accredited by ACCME, Mayo Clinic College of Medicine (Mayo School of Continuous Professional Development) must ensure balance, independence, objectivity and scientific rigor in its educational activities. Course director(s), planning committee, faculty, and all others who are in a position to control the content of this educational activity are required to disclose all relevant financial relationships with any commercial interest related to the subject matter of the educational activity. Safeguards against commercial bias have been put in place. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of this information will be published in course materials so those participants in the activity may formulate their own judgments regarding the presentation.

NATIONAL PHYSICIAN PAYMENT TRANSPARENCY PROGRAM

Mayo Clinic College of Medicine complies with the requirements of the National Physician Payment Transparency Program OPEN PAYMENTS (Physician Payments Sunshine Act).



Saturday, February 7, 2015

6:00 a.m.	Registration and Continental Breakfast for Meeting Participants	
6:50 a.m.	Welcome and Announcements <i>Jonathan M. Morris, M.D.</i>	
7:00 a.m.	What is 3D Printing and How Did it Develop? <i>Joel L. Kuhlmann</i>	
7:20 a.m.	Nuts and Bolts of Building a 3D Lab <i>Linda E. Nesberg</i>	
7:40 a.m.	Segmentation and Processing of Imaging Data to Create Anatomic Models <i>Jane M. Matsumoto, M.D.</i>	
8:00 a.m.	3D Modeling of Conjoined Twin Separation <i>Christopher Moir, M.D.</i>	
8:30 a.m.	Applications of 3D Modeling of the Kidneys and Prostate <i>Bernard F. King, M.D.</i>	
9:00 a.m.	Advantage of Anatomic Models in Renal Sparing Surgery <i>Bradley C. Leibovich, M.D.</i>	
9:30 a.m.	Question and Answer – Program Faculty <i>Terri J. Vrtiska, M.D.</i>	
9:45 a.m.	Break and Refreshments	
10:00 a.m.	Complex Segmentation of Spine and Heads <i>Jonathan M. Morris, M.D.</i>	
10:30 a.m.	Value of Anatomic Models for Complex Scoliosis Surgery <i>Anthony A. Stans, M.D.</i>	
11:00 a.m.	Role of Pelvic Models in Surgical Planning for Complex Resection and Reconstruction <i>Peter S. Rose, M.D.</i>	
11:30 a.m.	How do Anatomic Models Aid in Orthopedic Reconstructive Surgery? The Radiologist's Role <i>John Skinner, M.D.</i>	
12:00 p.m.	Ten Pearls in 3D Printing of Anatomic Models <i>Jane M. Matsumoto, M.D.</i>	
12:15 p.m.	Question and Answer – Program Faculty <i>Terri J. Vrtiska, M.D.</i>	
12:30 p.m.	Break	
12:45 p.m.	Topic Specific Round Table Discussion During Lunch <i>Course Faculty</i> <ul style="list-style-type: none"> • Establishing a 3D Lab • Orthopedic • Urology • Cranial Facial • Thoracic and Spine • Cardiovascular 	
1:30 p.m.	Changes in Cranial Reconstruction with 3D Printing <i>Nicholas N. Wetjen, M.D.</i>	
2:00 p.m.	Current State of 3D Printed Bone Scaffolding in Regenerative Medicine <i>Michael J. Yaszemski, M.D., Ph.D.</i>	

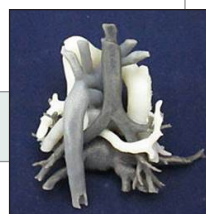
Saturday, February 7, 2015 - continued

2:30 p.m.	Key Indications for 3D Printing for Hip Replacement Surgery <i>Adam J. Schwartz, M.D.</i>
3:00 p.m.	Enhancing Medical Education with Anatomic Models <i>Jane M. Matsumoto, M.D.</i>
3:30 p.m.	New Horizons: Radiology Research Opportunities in 3D Printing <i>Kiaran P. McGee, Ph.D.</i>
4:00 p.m.	Panel Discussion with Question and Answer <i>Program Faculty</i>
4:30 p.m.	Program Adjourns for the Day



Sunday, February 8, 2015

6:00 a.m.	Continental Breakfast for Meeting Participants
6:50 a.m.	Announcements <i>Terri J. Vrtiska, M.D.</i>
7:00 a.m.	Vascular Anatomic Modelling and 3D Printing <i>Thomas A. Foley, M.D.</i>
7:30 a.m.	Development in Biomedical Engineering for Cardiovascular Applications of 3D Printing <i>David Frakes, Ph.D.</i>
8:00 a.m.	Anatomical Models for Preoperative Planning for Complex Thoracic Surgery <i>Dennis Wigle, M.D., Ph.D.</i>
8:30 a.m.	Anatomic Modeling for Cardiac Surgery and Interventions <i>Thomas A. Foley, M.D.</i>
9:00 a.m.	What's Happening in the Lab: Cardiac Valve 3D Printing <i>Daniel B. Spoon, M.D.</i>
9:30 a.m.	Question and Answer – Program Faculty <i>Terri J. Vrtiska, M.D.</i>
9:45 a.m.	Break and Refreshments
10:00 a.m.	Forensic Investigation Using Medical Models <i>Jonathan M. Morris, M.D.</i>
10:30 a.m.	Landscape of Medical 3D Printing: CPT Codes, FDA Oversight and the Role of Industry <i>Bruce R. Kline</i>
11:00 a.m.	Important Lessons We Have Learned <i>Jonathan M. Morris, M.D.</i>
11:30 a.m.	Panel Discussion with Question and Answer <i>Program Faculty</i> <i>Terri J. Vrtiska, M.D.</i>
11:45 a.m.	Course Concludes





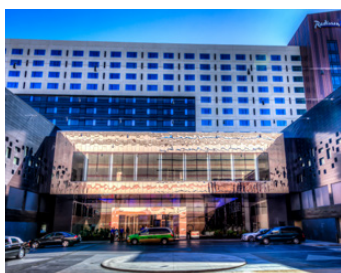
Mayo Clinic Diagnostic Imaging Update and Self-Assessment with optional Advanced Radiology Life Support™ (ARLS) Workshop

Workshop: July 26, 2015
Course: July 27–31, 2015
The Ritz-Carlton, Laguna Niguel
Dana Point, California



Advanced Radiology Life Support™ (ARLS) Course

September 19, 2015
Mayo Clinic, Siebens Medical Education Building
Rochester, Minnesota



Minnesota Breast Imaging Review Course

September 26-27, 2015
Radisson Blu Mall of America
Bloomington, Minnesota



Advances in Diagnostic Radiology

October 19-23, 2015
Four Seasons Resort Orlando
Orlando, Florida



Neuroradiology: Practice to Innovation

November 8-12, 2015
The Ritz-Carlton, Kapalua
Maui, Hawaii



Tutorials in Diagnostic Radiology

January 17-21, 2016
The Fairmont Kea Lani
Maui, Hawaii

Advanced Radiology Life Support™ (ARLS)

4.75 AMA PRA Category 1 Credits™

Neuroradiology: Practice to Innovation

21.5 AMA PRA Category 1 Credits™

Radiologist Training for Interpretation of Molecular Breast Imaging

1.75 AMA PRA Category 1 Credits™

State-of-the-Art Small Bowel Imaging: Review and Hands-on Tutorial Course Presented on Laptop Workstation

19.25 AMA PRA Category 1 Credits™

To order or for more information, please visit <http://www.mayo.edu/cme/radiology.html>.

ContrastTx – Mayo Clinic Contrast Reaction iPhone/iPad App

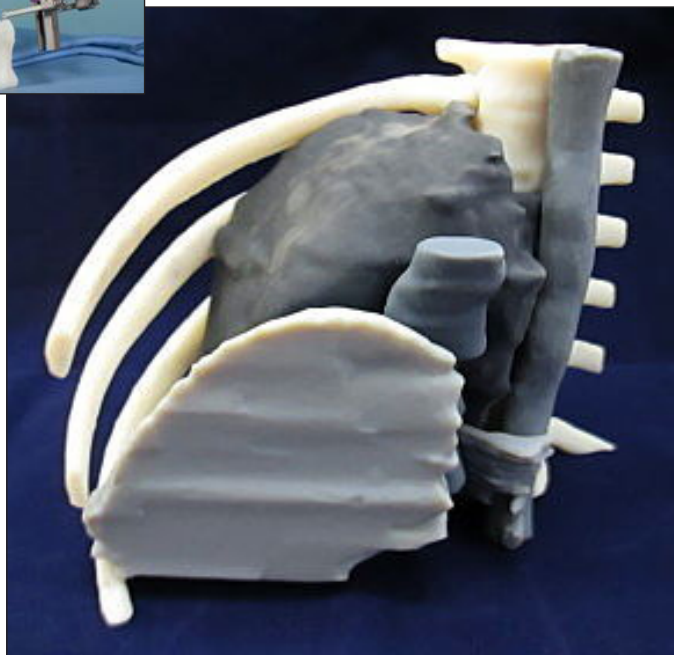
Designed to give providers quick access to Mayo Clinic's contrast reaction treatment protocols. This app focuses on the potentially life-threatening reactions that can occur when administering iodine or gadolinium radiographic contrast to patients.

To learn more, search "Mayo Clinic Contrast" in the Apple App Store. Download today for just \$2.99.



Suggested Treatment Regimens for Contrast Reactions (Poster)

To order or for more information, please visit <http://www.mayo.edu/cme/radiology.html>.



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Mail form and payment to:

Mayo Clinic Department of Radiology CME Office
 Mayo, West-2
 200 First Street SW
 Rochester, MN 55905

Telephone: 866-246-1581
 or 507-284-3317
 FAX: 507-266-3061
 E-mail: radiologycme@mayo.edu
 Website: www.mayo.edu/cme/radiology

Register online at: www.mayo.edu/cme/radiology

(Please print or type all information. You may duplicate this form for multiple registrations.)

Name _____
First Name Middle Name or Initial Last Name

Degree MD PhD DO PA NP Other _____

Institution _____

Medical Specialty _____

E-mail Address _____

How did you learn about this course?

- Email Marketing
- Full-Course Brochure Mailing
- RSNA
- Website (please identify): _____
- Other: _____

Address _____

City _____ State/PV _____

ZIP/Postal Code _____ Country _____

Home Telephone (_____) _____ Business Telephone (_____) _____

Please check if you have special accommodation or dietary needs and indicate specific need(s): _____

REGISTRATION FEE

Physicians, Scientists, Residents, PA's, and NP's \$600 \$ _____

Total Payment Enclosed: \$ _____

PAYMENT METHOD * US funds only *Wire transfers will be assessed a \$25 USD fee.

- Check *(make checks payable to Mayo Clinic)*
- Credit Card: Visa MasterCard Discover

Card Number _____ V-Code (3 digits on back of credit card) _____ Expires Mo/Yr _____

Signature _____ Date _____

MAYO CLINIC
200 First Street SW
Rochester, MN 55905

REGISTER TODAY! Collaborative 3D Printing in Medical Practice

February 7-8, 2015

Four Seasons Resort Scottsdale at Troon North
Scottsdale, Arizona



*If you have already received a copy of this brochure,
please give this brochure to an interested colleague.*

REGISTER ONLINE!

www.mayo.edu/cme/radiology

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