



2019 RVU Department of Research Strategic Plan

Background

Biomedical research is a critical component of medical education and includes fundamental studies at the bench, translational research, population studies, education, ethical and humanities studies, and clinical research. All of these research efforts greatly strengthen the education of medical students and residents preparing for independent practice.

Mission

The RVU Department of Research is committed to developing a research culture that strengthens our undergraduate and resident programs and prepares physicians for enhanced practice.

The Department of Research Strategic Plan directly aligns with the University's Mission and Core Values as described in the Strategic Plan Overview, specifically focusing on three Goals:

1. **Domain 1: Academics**
 - a. **Goal 3: Research**
 - i. Strategy 3.a. Promote translational, educational, and clinical research
 - ii. Strategy 3.b. Augment curricular improvement through research and scholarly activity
 - iii. Strategy 3.c. Advance faculty and student research opportunities
2. **Domain 3: Growth**
 - a. **Goal 7: Fiscal and Academic Health**
 - i. Strategy 7.b. Cultivate synergistic partnerships with other universities, employers, and health care systems
 - b. **Goal 8: Synergy**
 - i. Strategy 8.a. Create organizational synergies across educational, financial, accreditation, and research domains.

Not only does this plan reflect the strategic goals of the university, but also aligns with a recently completed Needs Assessment of RVU students requested education and research interests. This assessment can be found at the end of this document. The execution of the plan will be carried out and evaluated by the newly created Office of Research and Research Advisory Committee.

The curricular improvements focus on the development of a required mentored scholarly activity/research (MSAR) experience that will be phased in over the next 3 years. Over the next 2 years a research focused course will be developed and eventually required for all first year students. The development of the course will be coordinated by the Associate Dean/Curriculum and the Director of Research. The course will provide students the necessary skills to develop a research question, carry out the appropriate methodology, and evaluate the outcomes. These objectives will require instruction in biostatistics, research design, basic research methodologies, grant writing, ethical considerations of

research, and methods of dissemination. While current faculty can provide the instruction for many portions of the newly designed course, a biostatistician will be needed to augment the current faculty and provide statistical support for ongoing research projects. Funds for a new faculty member that will teach, conduct research, and provide statistical support has been requested for fiscal year 2019.

Portions of the course are currently under development as a pilot project utilizing students in the 2nd year physician scientists track during the 2018-19 academic year.

A critical component of the MSAR program will be acquiring an adequate number of research sites/opportunities for both student and faculty research experiences. This aspect of the strategic plan calls for the creation of a Virtual Research Laboratory (VRL), which will consist of research sites and opportunities for students and faculty to participate in a variety of research experiences. Affiliation agreements will be established with a variety of sites providing research opportunities from basic laboratory research, public health, population studies, and clinical research sites. Affiliations have already been established with National Jewish Health, the Colorado Department of Health and Environment, and the Centennial AHEC. Future sites will be developed at the State-wide AHEC system, the University of Denver, Colorado State University, the University of Colorado medical campus, the University of Northern Colorado, non-profit foundations for medical research like the International Foundation for CDKL5 Research, and pharma organizations in the Denver area such as Ampio. As indicated, this process has already begun, is well underway, and will be an ongoing activity to develop high-quality research opportunities.

The ultimate success of the VRL will depend on appropriate funding for the program. While some sites are willing to take students without payment, others will require funding to support projects in their facilities. The development of a payment system for off-campus research activity will greatly increase the opportunities for student and faculty research as well as establish strong ties with community partners. Funding for the VRL has been requested in the 2019 budget.

Long term success of the VRL will also require extramural funding. To this end, RVUCOM will need to hire a Grants coordinator to develop the extramural grant program. This position has been requested in the 2019 budget. Already a database of funding opportunities is currently underway that identifies research funding from multiple sources. With the approval of the Office of Research and Research Advisory Committee the policies and procedures for extramural grants will be revised to encourage faculty/resident and student participation in the extramural grant program. Additionally, the functioning intramural grant will need to be expanded. Increased funding has been requested in the 2019 budget.

RVU Strategic Plan 2019 ACTION PLAN for Office of Research Department

Submission Date: June 29, 2018 (Rev. October 23, 2018)

Department Goal	Specific Actions or Initiatives	Measures of Success	Outcomes or Results	Resources, Support, Information, etc.	University Goal(s) and Strategies	Progress / Status
<p>Goal 1: Develop a culture of research and scholarly activity in the areas of translational, educational, and clinical research</p>	<ol style="list-style-type: none"> 1. Establish the Office of Research with a F/T Director 2. Develop a Grants Office 3. Develop a Virtual Research Laboratory 4. Revise the RVU website so that research is highlighted and valued in the University 5. Develop/revise existing research policies for faculty and students to encourage and facilitate research by faculty and students 6. Departments negotiate protected time for research as reflected in faculty contracts. 	<ol style="list-style-type: none"> 1. University organizational chart reflects the existence of the Office of Research with a F/T Director by January 1, 2019 2. Development of a Grants Office by January 2019 3. Increased affiliate sites for faculty and student research by 15% 4. Revised research website completed by January 1, 2019 5. Policies and procedures for extramural grants in place by January 1, 2019 6. Increase in poster and oral 	<ol style="list-style-type: none"> 1. Enhance graduate residency placement/match opportunities 2. Increase graduate qualifications and employment opportunities 3. Attract and retain more qualified students 	<ol style="list-style-type: none"> 1. COCA standards on research and scholarly activity 2. Faculty position for Statistician 3. Increase intramural grant budget from \$30,000 to 50,000 in the next fiscal year 4. Create a faculty position for statistics and research methodology that would serve both COM campuses, the PA program and MSBS program by June 2019 5. Full-time Director 	<ol style="list-style-type: none"> 1. Goal 3: Research, Strategy 3.a, 3.b, 3.c 	

	<ul style="list-style-type: none"> 7. Increase funding for intramural grants 8. In conjunction with the Office of Compliance establish policies and procedures for extramural grants 9. Hire a full time Faculty/statistician to teach and mentor students and faculty 	<ul style="list-style-type: none"> presentations by 10% 7. Increase in published manuscripts by 5% 8. Increase in extramural grant submissions by 5% 				
<p>Goal 2: Improve student performance on USMLE step 1</p>	<ul style="list-style-type: none"> 1. Develop an integrated research curriculum for years 1 and 2 2. Hire appropriate faculty to teach in the research curriculum 3. Develop research electives in each program of the University 4. Develop the virtual research laboratory 5. Ensure syllabi, assessments, and outcomes in relevant courses reflect direct alignment w/topics on USMLE 	<ul style="list-style-type: none"> 1. Implementation of the integrated research curriculum by July 2019 2. Research electives approved by June 2019 3. Increase research sites in the virtual research laboratory by 5% 4. Improved pass rate on USMLE step 1 by 5% 5. All syllabi and assessments updated by July 1, 2019 	<ul style="list-style-type: none"> 1. Increase graduate opportunities for allopathic matches 2. Increase student performance, therefore persistence and completion 	<ul style="list-style-type: none"> 1. Hire a Faculty/statistician by June 2019 	<ul style="list-style-type: none"> 1. Goal: Research, Strategy 3.b 	

<p>Goal 3: Advance faculty and student research opportunities</p>	<ol style="list-style-type: none"> 1. Establish community research partners for translational and clinical research for students and faculty i.e. the virtual research laboratory 2. Increase the number of research mentors for faculty and research 3. Increase funding for intramural grants 4. Develop policies and process for obtaining extramural grants 5. Build MSAR program 	<ol style="list-style-type: none"> 1. Increase in the number of available research sites for faculty and students by 10% 2. Increased number of research mentors for research by 15% 3. Increased faculty / student research participation at established research sites by 5% 4. Increase in the number of submitted extramural grants by 5% 5. Increase in the amount of research productivity as measured by posters, presentations and peer-reviewed publications by 15% 	<ol style="list-style-type: none"> 1. Enhance faculty career opportunities and development 2. Increase faculty job satisfaction 3. Expand student career opportunities 	<ol style="list-style-type: none"> 4. Funding for virtual research laboratory 5. Hire F/T grants coordinator 	<ol style="list-style-type: none"> 1. Goal 7: Growth, Strategies 7.b 2. Goal 8: Synergy, Strategy 8.a 	
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MedCura
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RVUCOM “Virtual Research Laboratory” Needs Assessment Summary

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RVUCOM “Virtual Research Laboratory”

Needs Assessment Summary

August 28, 2018

Goal:

The main measurable result is to determine the types of research opportunities current RVUCOM students are interested in as well as what educational topics they would like learn in a research methods and techniques course.

Purpose:

MedCura Consulting LLC (Jennifer Hellier PhD, Owner) was hired by Rocky Vista University College of Osteopathic Medicine (RVUCOM) to develop a virtual research laboratory for RVUCOM Students.

Using the 2017 American Osteopathic Association's (AOA) Commission on Osteopathic College Accreditation (COCA) Standards and Elements, one of the objectives is: “the development of a virtual research laboratory for RVUCOM students in order for them to make contributions to the advancement of knowledge and the development of osteopathic medicine through scientific research and scholarly activity”. MedCura Consulting LLC is identifying universities, hospital systems, health departments, and private research facilities in Colorado that would like to partner with RVUCOM to provide both “wet” (in the lab) research and “dry” (may be in the community) research experiences for RVUCOM students.

We asked current RVUCOM students at both the Colorado (CO) and Southern Utah (UT) campuses for their input in this development phase by completing a brief survey. This report contains the summary responses from the needs assessment survey.

Profile of Students Completing the Needs Assessment:

On July 25, 2018, the needs assessment survey link was sent to all current RVUCOM students at both the CO and Southern UT campuses. There are roughly 600 OSM students in CO and about 230 OSM students in UT (approximately 830 total students). As of August 28, 2018, 86 students responded from the CO campus and 41 from the UT campus (127 students in total; Figure 1). This results in a 15 percent of all students responding (14.3% CO and 17.8% UT). Students responding to the option “Other” listed themselves as PA Year 1 or MSBS students.

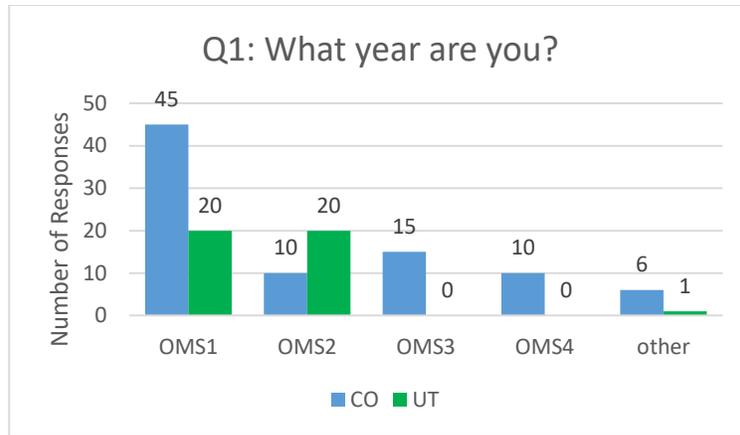


Figure 1: Number of current students responding to the survey. The majority are in their first year of osteopathic medical school. In 2018, the Utah campus matriculated its second class of osteopathic medicine students.

Research Methods and Techniques Course Interest:

Students were asked which topics they would like to have included in a Research Methods and Techniques course to better their understanding of research. There were 14 topics suggested by Drs. Hellier and Brandau as well as an “other” option. Students were asked to “check all that apply” to their interest. All 127 respondents selected multiple topics for this question. The top 5 topics choices are:

1. clinical studies (total = 79 [17%]; CO = 57 [66%] and UT = 22 [54%]);
2. biostatistical methods (total = 61 [13%]; CO = 43 [50%] and UT = 18 [44%]);
3. public health studies (total = 55 [12%]; CO = 40 [47%] and UT = 15 [37%]);
4. required certifications (total = 40 [9%]; CO = 29 [34%] and UT = 11 [27%]); and
5. how to use the library for research (total = 38 [8%], CO = 27 [31%] and UT = 11 [27%]).

All topics did have a response from both campuses, except “electrophysiology experiments”. It was not selected by any of the students on the UT campus. The summed responses for all topics are shown in Figure 2. Additionally, the eight (CO = 5 [10%] and UT = 3 [12%]) responses to “other” are listed below the graph.

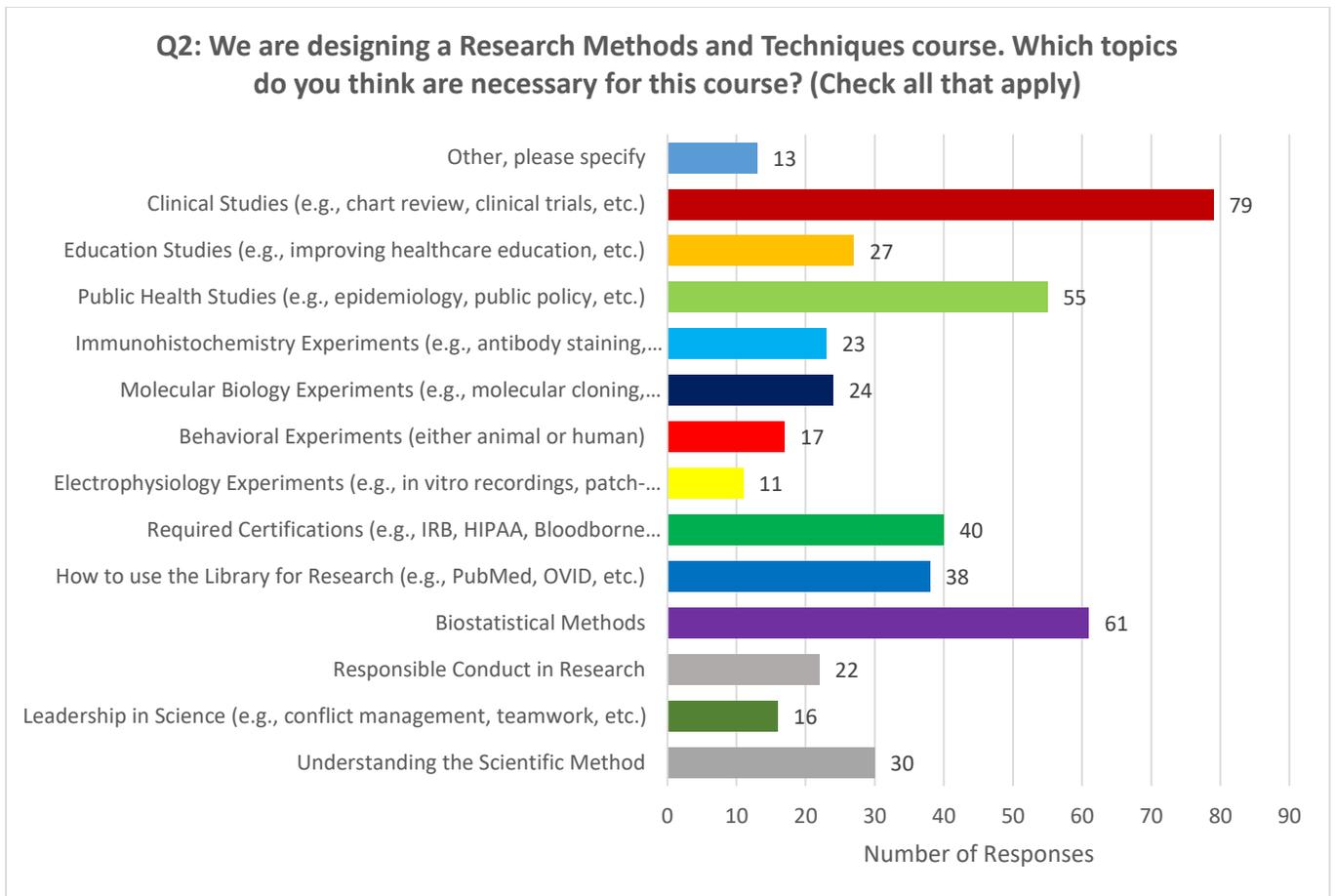


Figure 2: Summed responses to Question 2 of the needs assessment survey. The majority are in favor of “Clinical Studies” followed by “Biostatistical Methods” and “Public Health Studies”.

Below are unedited comments provided by the students for their answer of “Other (please specify)”:

- All of the above
- Biostatistical Methods, Electrophysiology, Behavioral, Molecular Biology, Immunohistochemistry, Public Health, and Clinical Studies.
- Brief Intro to Stats is crucial to research design in my opinion
- How to get involved in research and research resources
- IRB Certification only, How to use Library for Research if it's no longer included in the course Dr. Schwartz teaches
- Isn't this similar to the Physician-Scientist Track
- Learning how to engage in research
- Meta analysis
- n/a
- Research design, most biostatistical methods!!

Interest of Where to Complete Research:

The next few questions asked students what type of research they would be most interested in conducting. All respondents selected a choice for both questions. If they responded “Yes”, then they were asked to identify the specific type of research they would like to complete. Overall, the students prefer research in a clinical, educational, or public health setting. This is not surprising as these students are focused on healthcare. The summed responses for Questions 3 and 5 are shown in Figures 3 and 4, respectively. Additionally, the unedited comments provided by the students are listed below their respective graph.

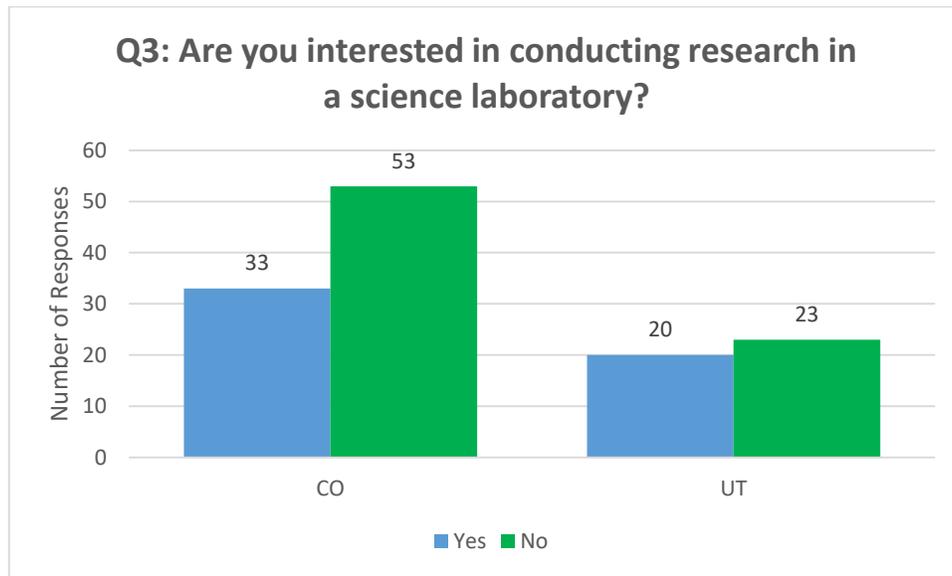


Figure 3: Summed responses to Question 3 of the needs assessment survey. About less than half of students are interested in conducting research in a science laboratory (blue bars; Summed = 41%, CO = 38%, and UT = 49%). There were

Below are unedited comments provided by the students.

Q4: If you checked "Yes" above, please state what type of research you would prefer to complete (e.g., molecular biology, behavior, etc.)?

- Any
- Behavior
- behavior
- behavior
- behavior
- Behavior
- behavioral
- behavioral

- Behavioral & immunohistochemistry
- Behavioral Neuroendocrinology
- Behavioral/psychiatric research. Also interested in pharmacology, cancer pathology/treatment, and any sort of clinically oriented research. Also also, research involving rural or underserved populations.
- Biochemistry and physiology
- Cell biology
- Clinical or Molecular
- Clinical studies
- Educational studies or behavioral
- for me, behavior
- Genetics
- I am extremely interested in the microbiome, that is a personal interest. For our education I think it is important to understand molecular biology research and human behavior
- Immunochemistry or animal studies
- Immunohistochemistry
- Immunohistochemistry
- Immunological, microbiological
- Immunology
- Immunology
- immunology
- Immunology (HIV)
- Immunology/infectious disease
- Molecular
- molecular bio immunohistochemistry
- molecular bio, pharm, immuno
- Molecular bio/genetic modification
- Molecular biology
- Molecular biology
- Molecular biology, electrophysiology, behavioral, and immunohistochemical studies.
- N/A
- NA
- Not decided
- Not sure yet.
- Pharmaceutical
- Psych or behavioral
- psychopharmacology/neurology
- Regenerative medicine
- Regenerative therapies
- Salivary biomarkers
- The most important thing for me is to have a passionate mentor in a field I care about (Preferably clinical, happy to do bench work in a medically relevant field).
- Undecided
- what ever is available

Reviewing these answers, there are a few trends in interests. From these answers, students are most interested in **behavioral research** (12 responses) followed by **molecular biology** (8 responses). Tied for third place was **immunohistochemistry** and **immunology** (6 responses each).

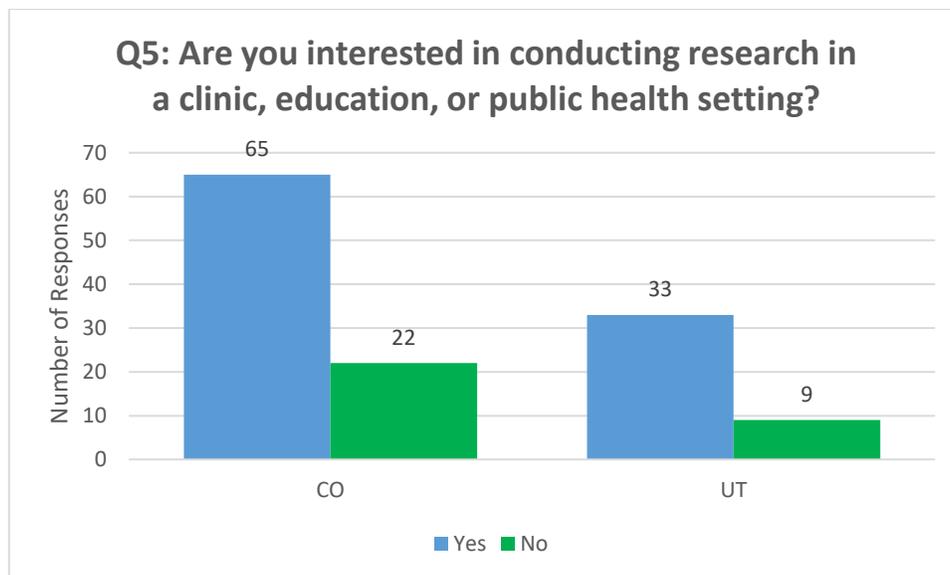


Figure 4: Summed responses to Question 5 of the needs assessment survey. The majority of students are interested in conducting research in a clinic, education, or public health setting (blue bars; Summed = 76%, CO = 76%, and UT = 80%).

Below are unedited comments provided by the students.

Q6: If you checked "Yes" above, please state what type of research you would prefer to complete (e.g., molecular biology, behavior, etc.)?

- All
- all of the above
- Any
- Any and all.
- Anything clinical
- behavioral
- case reports, narrative reports, epidemiology, patient compliance
- clinic
- clinic
- Clinic
- Clinic or public health
- Clinical
- Clinical
- Clinical
- Clinical

- Clinical
- Clinical
- Clinical
- Clinical
- Clinical
- Clinical
- Clinical
- Clinical Public Health
- clinical health- patient compliance, educational improvement
- Clinical research with human subjects, case studies
- Clinical research within the hospital setting
- clinical trials
- Clinical trials
- Clinical: addiction treatment alternatives.
- Clinical: any type would be desirable.
- Clinical: Biomedical Imaging
- Clinical: efficacy of recovery protocols following specific surgical techniques
- Clinical: Emergency medicine case reports
- Clinical: how hospital environment affects patient outcomes
- Clinical: Medical Education (specifically rural versus urban learning environments)
- Clinical: Neurostimulation
- Clinical: patient compliance and outcomes
- Clinical: patient compliance and outcomes
- Clinical: patient outcomes
- compliance
- Educational
- epidemiology
- Epidemiology
- Epidemiology
- Epidemiology
- epidemiology
- Epidemiology
- Epidemiology and patient compliance
- Epidemiology in third world countries
- I am doing research within my chosen specialty surgery.
- I am much more interested in interacting with people than lab/bench work. I also have a background with more public health and compliance related research.
- I am very interested in learning more about how people make lasting changes; I'd like to think that we are waking up to the importance of lifestyle choices and that no pill can erase bad choices... but how do we actually help patients to be compliant with both behavior and medications? Also, why do we spend so little time studying healthy people? I'm interested in learning more about why people are healthy
- I love clinical research and would cherish the opportunity to work with real patients.
- I'm currently working with Dr LaPorta on some things.
- knowledge of healthcare elements
- N/A

- Not decided
- Not sure
- Open to either, and many different types of research. Especially interested in focused research on specific conditions and correlations.
- Patient chart/case review Preventative health education
- patient compliance
- prevalence, case studies, etc.
- Public health -vaccine rates of risk Clinic - case studies
- Public health and epidemiology
- Public health or clinical
- Public health or patient compliance
- public health, clinical
- public health, global health
- Public health, patient compliance, and education
- public health, patient compliance
- Public Health: prescription meds abuse/misuse
- Public health
- Quality or compliance
- Translational Medicine clinical studies
- what ever is available

Reviewing these answers, there are a few trends in interests. From these answers, students are most interested in **clinical research** (37 responses) followed by **public health** (13 responses). The third most popular response was **epidemiology** (9 responses) followed by **any or all of the above** (4 responses).

The final question was an open-ended response for any additional comments or questions a student wanted to include. Those unedited responses are below. A few comments are highlighted in blue or green, as there may be an interest to follow-up on these comments or questions.

Q6: Comments or questions?

- Any advice on getting started in research would be appreciated.
- Can we be more informed on areas of interest that certain professors have? And whether these professors are currently conducting or are planning to conduct research?
- I believe very strongly that more medical students need to be involved in research but not laboratory research. Most medical students are forced into research and learn to hate being a lab rat doing the scut work for others. I love research because I got into the clinical side of it. I believe more medical students would love research if they were introduced to topics in their

possible fields of choice. If someone wants to do pediatrics then introduce them to pediatric questions that could be answered by a simple study.

- I need clinical research opportunities/projects relevant to surgery at the Utah campus ASAP.
- I think this is a wonderful idea. I already conducted research in my graduate program and what I had noticed with my peers quickly is that they didn't understand AMA citation, the importance of using primary research studies for references (rather than textbooks or meta analyses), and statistics statistics statistics. A lot of what was emphasized in my graduate program was knowing which statistical method to use and being able to think critically about other published studies that used statistical methods that weren't the best choice. Supposedly statistics is the least understood part of research studies and it is easy to pick whatever test gives a researcher a significant result. It's also easy to not have that possibly incorrect statistical method questioned when submitting for publication. I think an emphasis on biostatistical methods would be an excellent foundational component of a research course at RVU as well as how to research and write a research article (3rd person). Thanks for putting this together! Hope these comments help.
- I think we could use more direction on how we might go about finding a project we are interested in and reaching out to potential preceptors etc
- I'm interested in becoming involved in research, but I'm not sure where to start.
- n/a
- N/A
- N/A
- NA
- NA
- No.
- Please make a short course that can be reviewed online as necessary for board prep.
- What do you mean by the "Virtual Research Laboratory"? Is that just referring to this class? Or is that something separate?
- Would mandating research involvement be beneficial? If all RVU graduates have research under their belt, I'd expect residency placements to improve.

Summary:

Overall, the results of this needs assessment survey shows that RVUCOM students are interested in having research methods and techniques topics presented to them as part of their education. Additionally, there is a true interest in performing research particularly in the clinical and public health fields. Students do see the value in research for their career as well as improving RVUCOM's residency placements in the future.