Strategic Plan for Research
2020-2026

Building a national reputation for excellence in research and scholarship.
College Mission

The College of Agriculture, Forestry and Life Sciences provides integrated education, research, Extension, and public service in the grand challenges of global food supply and safety, human and animal nutrition, agricultural systems efficiency, environmental conservation, sustainable packaging and renewable resources. Through rigorous experiential and classroom learning opportunities, CAFLS readies its graduates to assume leadership roles in industries essential to ensuring the future security and prosperity of South Carolinians and our growing global population.

College Vision

To be a national leader in education, research, outreach, and Extension programs that provide integrated and sustainable solutions for agriculture and natural resources.
The strategic plan of the College of Agriculture, Forestry and Life Sciences offers priorities and core tactics for strengthening research capacity across the decade of 2016 to 2026. Two goals are addressed within this document:

**GOAL 3**
Strengthen CAFLS graduate student programs.
Objectives:
- Strengthen courses and programs that support graduate student success.
- Enhance national recognition of graduate student programs through proactive marketing.
- Develop and implement graduate student recruitment and incentive plans to attract high quality applicants and increase enrollment.
- Increase the number of professional development opportunities for graduate students.

**GOAL 4**
Strengthen research quality and impact.
Objectives:
- Develop an action plan to build a national reputation for excellence in research and scholarship.
- Increase research and scholarship productivity.
- Improve, upgrade, and expand research infrastructure and support.
Charge to Committee

The committee was charged with creating implementation plans and recommendations for CAFLS Research goals and objectives and aligning these plans to achieve ClemsonForward Research Goals.

Three subcommittees worked on specific CAFLS goals and objectives, planned their own meetings, and submitted reports at full committee meetings.

Each subcommittee developed implementation plans for achieving the CAFLS research goals and specific objectives. Implementation plans were expected to:

- outline major actions/tasks needed to achieve the objectives;
- identify any risks or concerns that will need to be addressed;
- clarify management oversight;
- determine resources needed and proposed funding strategies; and
- establish specific metrics for success.

The plan also was expected to include the status of actions already taken to achieve goals and objectives.

The following groups or individuals were used to advise the committee:

- Graduate Program Coordinators
- Academic Department Chairs
- Endowed Chairs
- REC Directors
- Research Development Strategist (Mira Mihajlovich)
- HR Strategist (Tan Davis)
Subcommittees

Subcommittee on Graduate Programs
M. Argüelles-Ramos, C. Jachowski, C. Privette
Propose implementation strategies and actions needed to strengthen graduate programs.
CAFLS GOAL 3: Strengthen CAFLS graduate student programs and enrollment.
• Objective 1. Increase doctoral student enrollment.
• Objective 2. Strengthen course offerings for graduate student programs.
• Objective 3. Increase professional development opportunities for graduate students.

Subcommittee on Research Relevance & Capacity
J. Andrae, K. Coleman, A. Chow, K. Kirk
Assess current research infrastructure and capacity, and determine future needs.
Identify actions needed to ensure relevance to S.C stakeholders.
CAFLS GOAL 4: Strengthen research quality and impact.
• Objective 1. Assess research infrastructure and capacity.
• Objective 2. Ensure relevance to S.C. stakeholders.

Subcommittee on Research Productivity
R. Boyles, K. Gasic, A. Hurley, B. Ward
Identify actions to increase faculty research and productivity and to promote faculty professional development.
CAFLS GOAL 4: Strengthen research quality and impact.
• Objective 3. Promote faculty professional development for research excellence.
• Objective 4. Increase research and scholarship productivity.
Goals and Objectives

Strengthen CAFLS Graduate Student Programs and Enrollment

Objective 1. Increase doctoral student enrollment.

MARKETING | Enhance national recognition of graduate student programs through proactive marketing.

TUITION WAIVERS | Adopt a policy that requires all graduate assistantships in the college to be full-time.

PARTNERSHIPS | Partner with industry and corporations to sponsor assistantships.

COMPETITIVE GRANTS | Encourage and facilitate inclusion of graduate assistantships in grant submissions by faculty.
Objectives

Strengthen CAFLS Graduate Student Programs and Enrollment

Objective 2. Strengthen course and program offerings for graduate student programs.

FOUNDATION | Develop a core of courses that reflect foundational knowledge, skills (e.g., teaching, grant-writing, publishing, etc.), and address emerging issues in the disciplines.

INTERDISCIPLINARY | Develop certificate programs and online delivery of interdisciplinary MS programs.

EXPOSURE | Encourage faculty to develop interdisciplinary grant proposals, in order to facilitate exposure of GRAs to interdisciplinary research.

OFF-CAMPUS FACULTY | Utilizing Research and Education Centers (REC) expertise to educate graduate students through enhanced course offerings.

TEACHING | Improve awareness and increase co-teaching of currently offered, but underutilized, graduate courses that are broadly applicable.
Goals and Objectives

Strengthen CAFLS Graduate Student Programs and Enrollment

Objective 3. Increase professional development opportunities for graduate students.

SCIENTIFIC MEETINGS | Increase the number of students who attend and present at national and international scientific meetings.

INTERDISCIPLINARY | Encourage on-campus and off-campus faculty to develop interdisciplinary, University-wide workshops and training programs for graduate students.

Objective 4. Improve professional development opportunities for graduate students.

PROFESSIONAL DEVELOPMENT | Increase faculty and graduate student utilization of professional development offered by the Graduate School via GRAD 360.

SEMINAR | Encourage graduate students to coordinate a Departmental or College-level seminar series.

REC FACILITIES | Initiate an annual research symposium for CAFLS graduate students to be hosted at REC facilities on a rotating basis.

TEACHING | Develop a process for graduate students to contribute to teaching.
Goals and Objectives

Strengthen CAFLS Graduate Student Programs and Enrollment

Objective 5. Assess research infrastructure and capacity.

DATABASE  |  Create and maintain an internal, searchable research infrastructure and capacity database to promote faculty collaboration.

CLEAR POLICIES  |  Develop and communicate clear policies for resource requests regarding the organization and oversight of land and facilities available to CAFLS faculty.

CORE EQUIPMENT  |  Assess the need, cost and impact of purchasing core equipment and instrumentation to support basic research.

INFRASTRUCTURE  |  Leverage resource databases and needed equipment, space, and facilities for planned state funding research infrastructure requests.

TECHNICAL SUPPORT  |  Determine factors that impact recruitment and retention of technical support.
Goals and Objectives

Strengthen Research Quality and Impact

Objective 6. Ensure relevance to S.C. stakeholders.

ADVISORY COUNCILS  |  Include individuals with research interests on Advisory Councils for every academic department and REC.

COMMODITY BOARDS  |  Strengthen relationships with commodity boards and associations representing agriculture and forestry sectors in South Carolina.

EXTERNAL STAKEHOLDERS  |  Develop a public, web-based inventory of CAFLS faculty research topics.

POLICY MAKERS  |  Develop a research communications plan targeted to external stakeholders and policy makers in South Carolina.

EXTENSION  |  Improve dissemination of research information through Clemson Extension channels.

CAPACITY GRANTS  |  Communicate relevance of Hatch and McIntire-Stennis Project funds in addressing South Carolina agriculture and forestry-related problems.
Goals and Objectives

Strengthen Research Quality and Impact

Objective 7. Increase research scholarship and productivity.

COMMUNICATION  |  Improve awareness and communication of university, college and departmental resources to enhance and support faculty research & scholarship.

RESEARCH THEMES  |  Identify research program themes that are aligned with state needs.

Objective 8. Promote faculty professional development for research excellence.

RESEARCH PROFILES  |  Create relevant and engaging research profiles for every CAFLS research faculty member.

FACULTY MENTORING  |  Develop faculty mentoring program focused on research excellence.

ENTREPRENEURSHIP  |  Define CAFLS position on value of entrepreneurship in TPR process.
Committee Members

Primary Members

Mireille Argüelles-Ramos
Charles Privette
Andrew Hurley
Cathy Jachowski
Ksenija Gasic
Kendall Kirk

Richard Boyles
Alex Chow
John Andrae
Brian Ward
Kathy Coleman

Department Chair Advisors
Charles Privette
Kristine Vernon
Greg Yarrow
Carlyle Brewster
Jeff Rhodehamel

Graduate Program Coordinator Advisors
Guido Schnabel
Mike Caterino
Paul Dawson
Dale Layfield
David Willis
Kyle Barrett
Jeri Jones

Endowed Chair Advisors
John Andrae
Matt Smith
Skip Van Bloem
Kathy Coleman
Chris Ray

Coordination
Paula Agudelo
Kathy Woodard

Staff Advisors
Tan Davis
Mira Mihajlovich
Kayla Steele Payne

REC Director Advisors
Rob Baldwin
Michael Caterino
Kay Cooksey
Susan Duckett
Stephen Kresovich
Patrick McMillan
Drew Lanham
Appendix

CAFLS Strategic Plan for Research: Implementation Plan

Note: All images were photographed on Clemson University property and illustrate ongoing CAFLS research.
# STRATEGIC PLAN FOR RESEARCH
Implementation Plan: Spring 2020

## CAFLS Goal 3: Strengthen CAFLS Graduate Student Programs and Enrollment

<table>
<thead>
<tr>
<th>OBJECTIVE 3.1.</th>
<th>Actions</th>
<th>Responsibility</th>
<th>Resources</th>
<th>Metrics</th>
<th>Timeline</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase doctoral student enrollment.</td>
<td>Enhance national recognition of graduate student programs through proactive marketing.</td>
<td>Graduate School, Dean, ADR, GPCs, Chairs, Faculty</td>
<td>Marketing Firm</td>
<td>PhD students recruited PhD degrees awarded</td>
<td>Fall 2020 and ongoing</td>
<td>Costs of marketing services</td>
</tr>
<tr>
<td></td>
<td>Adopt a policy that requires all graduate assistantships in the college to be full-time.</td>
<td>ADR, Dean, GPCs</td>
<td>none</td>
<td>Full Adoption</td>
<td>Fall 2020</td>
<td>Potential reduction in ability to support students</td>
</tr>
<tr>
<td>Partner with industry to supplement graduate research assistantships</td>
<td>GPCs, Faculty, Chairs, Development</td>
<td>Education Advisory Board</td>
<td>Number of industry-sponsored assistantships</td>
<td>Ongoing</td>
<td>Assessment of short and long-term needs of industry and academia</td>
<td></td>
</tr>
<tr>
<td>Facilitate inclusion of graduate assistantships in large grant submissions by faculty</td>
<td>ADR, GPCs, Chairs, Faculty</td>
<td>USDA grant programs</td>
<td>Number of assistantships included in large grants</td>
<td>Ongoing</td>
<td>Faculty time required for large grant development</td>
<td></td>
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</table>
## CAFLS Goal 3: Strengthen CAFLS Graduate Student Programs and Enrollment

<table>
<thead>
<tr>
<th>OBJECTIVE 3.2.</th>
<th>Actions</th>
<th>Responsibility</th>
<th>Resources</th>
<th>Metrics</th>
<th>Timeline</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen course &amp; program offerings for graduate student programs.</td>
<td>Develop core courses for foundational knowledge, skills, and address emerging issues.</td>
<td>Faculty, GPCs, Curriculum Committees</td>
<td>Faculty time</td>
<td>Number of courses offered</td>
<td>2026</td>
<td>Potential duplication across programs</td>
</tr>
<tr>
<td></td>
<td>Offer new innovative graduate courses that are applicable across multiple disciplines.</td>
<td>Faculty, GPCs, Curriculum Committees</td>
<td>FTEs for teaching</td>
<td>Number of new courses offered per year</td>
<td>Ongoing</td>
<td>Demands on graduate faculty</td>
</tr>
<tr>
<td></td>
<td>Identify and develop online certificates and MS interdisciplinary programs.</td>
<td>Faculty, GPCs, Curriculum Committees</td>
<td>Funds from tuition</td>
<td>New online certificates and programs</td>
<td>2026</td>
<td>Rigor of online courses for non-thesis degrees</td>
</tr>
<tr>
<td></td>
<td>Hire full time lecturers to develop and coordinate online graduate courses.</td>
<td>Department Chairs</td>
<td>FTEs for teaching</td>
<td>Number of lecturers hired to develop online graduate courses</td>
<td>2026</td>
<td>Time-intensive Dedicated staff Funding for coordinators</td>
</tr>
<tr>
<td></td>
<td>Encourage Faculty to develop interdisciplinary grant proposals and facilitate exposure of GRAs to interdisciplinary work/research.</td>
<td>Faculty, GPCs, Chairs</td>
<td>Funds for graduate stipends (greater demand for courses)</td>
<td>Number of interdisciplinary grant proposals submitted and awarded</td>
<td>2026</td>
<td>Demands on faculty time</td>
</tr>
</tbody>
</table>

GPC: Graduate Program Coordinators  
ADR: Associate Dean for Research and Graduate Studies
### CAFLS Goal 3: Strengthen CAFLS Graduate Student Programs and Enrollment

<table>
<thead>
<tr>
<th>OBJECTIVE 3.3.</th>
<th>Actions</th>
<th>Responsibility</th>
<th>Resources</th>
<th>Metrics</th>
<th>Timeline</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen course &amp; program offerings for graduate student programs.</td>
<td>Utilize Research and Education Centers (REC) expertise to educate graduate students through enhanced course offerings</td>
<td>Faculty, GPCs, Chairs, REC Directors</td>
<td>FTEs for teaching and Teaching appointments</td>
<td>Number of REC faculty teaching graduate courses</td>
<td>Spring 2020 and ongoing</td>
<td>Compliance with appointments and funding sources</td>
</tr>
<tr>
<td></td>
<td>Improve awareness and co-teaching of currently offered, but underutilized, courses that are applicable across disciplines.</td>
<td>Faculty, GPCs, Chairs</td>
<td>Faculty Time</td>
<td>Number of students, outside the major, taking course</td>
<td>Spring 2020 and ongoing</td>
<td>Could lead to larger class sizes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OBJECTIVE 3.4.</th>
<th>Actions</th>
<th>Responsibility</th>
<th>Resources</th>
<th>Metrics</th>
<th>Timeline</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase professional development opportunities for graduate students.</td>
<td>Increase the number of students who attend and present at national and international scientific meetings.</td>
<td>Faculty, GPCs, Chairs, ADR, Graduate School</td>
<td>Funds for seminar series and attending meetings</td>
<td>No. of students presenting at scientific meetings</td>
<td>Spring 2020</td>
<td>Support students who are presenting vs. attending.</td>
</tr>
<tr>
<td></td>
<td>Encourage on-campus and off-campus Faculty to develop interdisciplinary, University-wide workshops and training programs for graduate students.</td>
<td>Faculty, GPCs, Chairs, REC Directors, Graduate School</td>
<td>Funds for interdisciplinary training</td>
<td>No. of training programs</td>
<td>Spring 2021</td>
<td>Emphasis on promoting interdisciplinary approach to address complex real-world problems</td>
</tr>
</tbody>
</table>

**GPC:** Graduate Program Coordinators  
**ADR:** Associate Dean for Research and Graduate Studies
## CAFLS Goal 3: Strengthen CAFLS Graduate Student Programs and Enrollment

<table>
<thead>
<tr>
<th>OBJECTIVE 3.5.</th>
<th>Actions</th>
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<th>Resources</th>
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<th>Timeline</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve professional development for graduate students.</td>
<td>Develop a process for graduate students to contribute to teaching within the department.</td>
<td>Faculty, GPCs, Chairs</td>
<td>Committee developed to create process</td>
<td>No. of graduate students teaching courses</td>
<td>Fall 2020</td>
<td>Students would be responsible for inviting and hosting speakers and advertising</td>
</tr>
<tr>
<td></td>
<td>Allow graduate students to coordinate a Departmental or College-level seminar series.</td>
<td>Faculty, GPCs, Chairs, ADR</td>
<td>Funds for seminar series</td>
<td>No. of seminars organized by graduate students</td>
<td>Spring 2020</td>
<td>Cash prizes awarded to best presenters Funds for student travel</td>
</tr>
<tr>
<td></td>
<td>Initiate an annual research symposium for CAFLS graduate students to be hosted at various REC facilities on a rotating basis.</td>
<td>Faculty, GPCs, Chairs, REC Directors, ADR</td>
<td>Funds for seminar series and student attending meetings</td>
<td>No. of symposia held at RECS No. of CAFLS students attending</td>
<td>Spring 2021</td>
<td>Cash prizes awarded to best presenters Funds for student travel</td>
</tr>
<tr>
<td></td>
<td>Increase Faculty and graduate student awareness of existing professional development tools and opportunities offered by the Graduate School via GRAD 360.¹</td>
<td>Faculty, GPCs, Chairs, ADR</td>
<td>Number of GRAD 360 events attended by CAFLS students</td>
<td>Fall 2020 and ongoing</td>
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</tbody>
</table>

¹ See [https://grad360.sites.clemson.edu/](https://grad360.sites.clemson.edu/)

GPC: Graduate Program Coordinators
ADR: Associate Dean for Research and Graduate Studies
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</thead>
<tbody>
<tr>
<td>Assess Research Infrastructure and Capacity</td>
<td>Staff to maintain database</td>
<td>Database Search tool</td>
<td>Summer 2020</td>
<td>Staff and communication; Cooperation of faculty with the equipment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ongoing</td>
<td>Increased use of College facilities</td>
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<tr>
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<tr>
<td>Create and maintain an internal research infrastructure database that can be accessed to promote collaboration.</td>
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<tr>
<td>Develop and communicate clear policies for resource requests and for oversight and availability of land and facility resources</td>
<td>Assistant Director of Experiment Station</td>
<td>All levels of CAFLS administration</td>
<td></td>
<td>Increased use of College facilities</td>
</tr>
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</tr>
<tr>
<td>Assess the need, cost and impact of purchasing core multi-user equipment and instrumentation to support basic research</td>
<td>Chairs, REC Directors, Faculty</td>
<td>Increased research opportunities</td>
<td></td>
<td>Increased research opportunities</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Leverage resource databases and needed equipment/space/facilities for future state funding research infrastructure asks</td>
<td>REC Directors, Chairs, Experiment Station</td>
<td>Use of databases to assist with determination of priority requests</td>
<td></td>
<td>Use of databases to assist with determination of priority requests</td>
</tr>
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<td></td>
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</tr>
<tr>
<td>Determine factors that impact recruitment and retention of research and technical support.</td>
<td>Directors, Chairs, Faculty</td>
<td>Weigh long term retention (techs) vs short term productivity (postdocs)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CAFLS Goal 4: Strengthen Research Quality and Impact
### CAFLS Goal 4: Strengthen Research Quality and Impact

<table>
<thead>
<tr>
<th>Objective 4.2.</th>
<th>Actions</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ensure relevance to S.C. stakeholders.</td>
<td>Include individuals with research interests on Advisory Councils for academic departments and RECs.</td>
<td>Academic Departments and REC.</td>
<td>Departments and RECS</td>
<td>At least one research member on councils</td>
<td>Variable and ongoing</td>
<td>Consistent input and feedback from external stakeholders</td>
</tr>
<tr>
<td></td>
<td>Strengthen relationships with all commodity boards/associations representing agriculture and forestry sectors in S.C.</td>
<td>Experiment Station, REC Directors, Chairs</td>
<td>Travel time and resources for travel</td>
<td>Consistent input from commodity representatives</td>
<td>Ongoing</td>
<td>Development of a strategic communications plan</td>
</tr>
<tr>
<td></td>
<td>Explore feasibility of web-based database of CAFLS research available to stakeholders.</td>
<td>Experiment Station &amp; Governmental Affairs</td>
<td>Taskforce</td>
<td>Feasibility Report</td>
<td>Spring 2023</td>
<td>Keep database updated and relevant</td>
</tr>
<tr>
<td></td>
<td>Develop a communications plan targeted to external stakeholders and policy makers in S.C.</td>
<td>Experiment Station and PSA Communications</td>
<td>Communications and Marketing expertise</td>
<td>Targeted communication of impact of CAFLS/PSA research</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve dissemination of research information to external audiences through Extension channels.</td>
<td>Extension, ADR, Faculty, Chairs</td>
<td></td>
<td>Improved integration of Extension into departments</td>
<td>Ongoing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communicate relevance of Hatch and McIntire-Stennis Project funds in addressing S.C. agriculture and forestry-related problems.</td>
<td>Experiment Station PSA Communications</td>
<td></td>
<td>Number of press releases referencing capacity funds</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>
### CAFLS Goal 4: Strengthen Research Quality and Impact

#### OBJECTIVE 4.3.

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</tr>
</thead>
<tbody>
<tr>
<td>Improve awareness and communication of resources to enhance and support faculty research &amp; scholarship.</td>
<td>ADR and CAFLS/PSA Communications</td>
<td>Website with resources for CAFLS faculty workshops/lunch and learn</td>
<td>Website developed visits to website Attendance at workshops</td>
<td>Ongoing</td>
<td>Website maintained and updated regularly</td>
</tr>
<tr>
<td>Identify up to 4 research program themes that are important to state needs and stakeholders</td>
<td>Faculty to identify themes Theme Chairs to lead and manage</td>
<td>Seed funds Faculty participation</td>
<td>Number of grant awards &amp; publications per theme</td>
<td>Fall 2020 – theme selection Fall 2021 - funds</td>
<td>Sustainability plan after seed funds</td>
</tr>
</tbody>
</table>

#### OBJECTIVE 4.4.

<table>
<thead>
<tr>
<th>Actions</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Create relevant and engaging research profiles for every CAFLS research faculty member</td>
<td>Chairs working with CAFLS/PSA Communications</td>
<td>Leverage CAFLS and University resources to create profiles.</td>
<td>Number of profiles created</td>
<td>12-24-36 month roll-out</td>
<td>Faculty participation</td>
</tr>
<tr>
<td>Develop faculty mentoring program focused on research excellence.</td>
<td>Dean, ADR, Chairs, Faculty</td>
<td>Leverage existing initiatives (e.g., TIGERS ADVANCE)</td>
<td>Creation of CAFLS faculty mentoring program</td>
<td>Fall 2020</td>
<td>Faculty participation</td>
</tr>
<tr>
<td>Define CAFLS position on value of entrepreneurship in TPR process</td>
<td>ADR, Chairs, Faculty entrepreneurs, CURF</td>
<td>Faculty Entrepreneurship Taskforce CURF (Inspire)</td>
<td>Development of guidance document</td>
<td>Fall 2020</td>
<td>Bias towards established faculty, challenge of IP valuation</td>
</tr>
</tbody>
</table>