

# Abilene Christian University

## Goals and Faculty Evaluation

### January 1, 2018 - December 31, 2019

Name: Drachenberg, James Lucas

Department(s): Department of Engineering and Physics

2019-2020

|                      | Fall | Spring | Summer |
|----------------------|------|--------|--------|
| Teaching             | %    | %      | %      |
| Research/Scholarship | %    | %      | %      |
| Service              | %    | %      | %      |
| Administrative       | %    | %      | %      |

#### Teaching

Teaching Goals for the Year (completed by June 1 by faculty member)

Reflections on Goals (completed by March 1 by faculty Member)

Additional Teaching Activities Not Included in Goals:

Chair's Evaluation of Goal Completion (completed by April 1)

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     |                      |

Areas of Competence: Faculty are expected to develop competence in each of these areas (completed by April 1 by chair)

|                                    | Unsatisfactory | Needs Improvement | Effective | Excellent |
|------------------------------------|----------------|-------------------|-----------|-----------|
| Student Satisfaction               |                |                   |           |           |
| Classroom Effectiveness            |                |                   |           |           |
| Syllabi                            |                |                   |           |           |
| Integration of Faith/Learning      |                |                   |           |           |
| Class/Course Enhancement           |                |                   |           |           |
| Student Advising/Mentoring         |                |                   |           |           |
| Teaching (Overall rating by chair) |                |                   |           |           |

#### Scholarship

Scholarship/Creativity Goals for the Year (completed by June 1 by faculty member)

Reflections on Goals (completed by March 1 by faculty Member)

Additional Scholarly/Creative Activities Not Included in Goals:

Chair's Evaluation of Goal Completion (completed by April 1)

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     |                      |

Scholarship/Creativity (Overall rating by chair)

| Unsatisfactory | Needs Improvement | Effective | Excellent |
|----------------|-------------------|-----------|-----------|
|                |                   |           |           |

## Service

Service Goals for the Year (completed by June 1 by faculty member)

Reflections on Goals (completed by March 1 by faculty Member)

Additional Service Activities Not Included in Goals:

Chair's Evaluation of Goal Completion (completed by April 1)

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     |                      |

Service (Overall rating by chair)

| Unsatisfactory | Needs Improvement | Effective | Excellent |
|----------------|-------------------|-----------|-----------|
|                |                   |           |           |

## Summary Assessment by Department Chair

### Written Comments

1. Collegiality
2. Progress toward tenure
3. Progress toward promotion
4. Constraints on performance
5. Comment on church membership
6. Other

### 2018-2019

|                      | Fall | Spring | Summer |
|----------------------|------|--------|--------|
| Teaching             | 60%  | 60%    | 0%     |
| Research/Scholarship | 20%  | 20%    | 100%   |
| Service              | 20%  | 20%    | 0%     |
| Administrative       | %    | %      | %      |

## Teaching

Teaching Goals for the Year (completed by June 1 by faculty member)

T1. Plan to assemble an active-learning curriculum for EPI, including the following: creating new pre-lecture recordings, creating a full set of PowerPoint lecture slides, and developing in-class activities that leverage instructional features of the new Onstead classrooms.

T2. Plan to assemble an active-learning curriculum for E&M, including the following: creating a full set of PowerPoint lecture slides and implementing in-class activities that leverage instructional features of the new Onstead classrooms.

T3. Plan to review EPI laboratory exercises and collaborate with Shon Watson and Cecily Barker on a vision for revising the laboratory course.

**Reflections on Goals (completed by March 1 by faculty Member)**

T1. Positives: Curriculum development for EPI was successful. I managed to creating pre-lecture recordings and a full set of PowerPoint lecture slides for each chapter. The new instructional features of Onstead facilitated some very interesting possibilities for activities during lecture, e.g. working problems in groups at the white boards.

Challenges: For a class of 13, the in-class activities worked well. Expanding these to larger class sizes, e.g. 30 students, may prove challenging. Another challenge was choosing problems appropriate to the time available in class. Simply lifting back-of-the-book problems is not always optimal, as they are usually "calculation-heavy," requiring students to get out calculators and often hiding some of the conceptual elements. Going forward, I will try to streamline these, replacing "numbers" with "symbols" to save some time. Additionally, regardless of my encouraging, it is constantly a struggle to persuade students to come to office hours and prepare adequately for class. It is ever thus. Going forward, I will continue to develop ways to encourage and reward "good behavior."

T2. Positives: Curriculum development for E&M was successful. I borrowed heavily from the education-research group at Colorado-Boulder. I was able to create a full set of PowerPoint lecture slides and implemented some in-class activities, similar to EP.

Challenges: I did not have time to develop pre-lecture recordings; which I would like to do, next time. Given the level of difficulty of this course, I needed to spend quite a bit of time lecturing on the mathematical derivations. Going forward, I would offload some of this to the pre-lecture recordings to open up more time for example problems and in-class activities.

As a side note, I know I can improve in my performance teaching this course. This first time was a challenge, as it always is for any course. However, I sincerely hope I am given another chance to teach this class in the near future; as it was a fun challenge and despite my own learning curve, I think the students enjoyed it, as well.

T3. Positives: I was able to observe the existing EPI lab and develop some ideas for improvements. I have also taken on an honors contract for the spring semester, where the student will work with me to develop a new lab exercise.

Challenges: Three new preps was pretty time consuming. I did not devote as much time to this goal, as I would have liked. However, I do think that we have some ideas for a path forward. I pretty decent overhaul is in order.

**Additional Teaching Activities Not Included in Goals:**

**Chair's Evaluation of Goal Completion (completed by April 1)**

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     | X                    |

As I read Dr. Drachenberg's student opinion of instruction, the one remark that summarizes the student responses, is "His classes are very hard because of the subject but somehow he manage to made the hardest class of the semester the best class because every time I left class I learned something new." Inherent in Dr. Drachenberg's approach are high expectations coupled with helping students achieve the expectations.

**Areas of Competence: Faculty are expected to develop competence in each of these areas (completed by April 1 by chair)**

|                                           | Unsatisfactory | Needs Improvement | Effective | Excellent |
|-------------------------------------------|----------------|-------------------|-----------|-----------|
| Student Satisfaction                      |                |                   |           | X         |
| Classroom Effectiveness                   |                |                   |           | X         |
| Syllabi                                   |                |                   | X         |           |
| Integration of Faith/Learning             |                |                   | X         |           |
| Class/Course Enhancement                  |                |                   |           | X         |
| Student Advising/Mentoring                |                |                   | X         |           |
| <b>Teaching (Overall rating by chair)</b> |                |                   |           | X         |

## Scholarship

### Scholarship/Creativity Goals for the Year (completed by June 1 by faculty member)

- S1. Apply for ACU to join the Solenoidal Tracker at RHIC (STAR) collaboration at Brookhaven National Laboratory (BNL).
- S2. Involve ACU undergraduate students in the disassembly of the STAR forward meson spectrometer (FMS) at BNL.
- S3. Continue my term as STAR Deputy Spokesperson
- S4. Continue my service as chair of the STAR Analysis Blinding Committee
- S5. Complete my term as Co-convener of the TMD Session of the International Spin Symposium and attend the conference in Ferrara, Italy.
- S6. Present a report of my analysis effort at the Fall Meeting of the APS Division of Nuclear Physics
- S7. Plan to develop a new analysis of quark and gluon fragmentation functions.
- S8. Plan to collaborate with Mike Daugherty and ACU undergraduate students on new data analysis efforts for STAR.
- S9. Plan to assist in the development of an NSF MRI proposal for the STAR forward upgrade.
- S10. Plan to participate in hardware/construction efforts for the STAR forward upgrade.
- S11. Attend the STAR Collaboration Meeting at Lehigh University in Bethlehem, PA.
- S12. Plan to secure the first journal publication for ACU as a member of the STAR collaboration.

### Reflections on Goals (completed by March 1 by faculty Member)

- S1. Positives: The application for ACU to join STAR was unanimously accepted and approved. No negatives, here. A big one to check off!
- S2. Positives: Roy Salinas and Ty Fitch traveled from FNAL to BNL to assist with disassembly of the STAR FMS detector. I was able to secure housing and guest appointments. The work was finished ahead of schedule without incident. Roy and Ty responded \*extremely\* positively to the experience. They were also fantastic to work with and be around and should be commended for their effort and maturity. They left an extremely positive impression on the BNL scientists. Challenges: Coordinating the effort, this summer, was a bit complicated simply due to the uniqueness of the circumstances. I joined the group after summer plans had been made, so it was a bit of a challenge to find students who were

available and adjust the plans of faculty like Dr. Daugherty to travel to BNL after I left to come back to Abilene. This was unavoidable, though; and everyone was flexible and accommodating. Going forward we will be able to set plans ahead of time and avoid these issues.

S3. Positives: I was able to continue in my role as STAR Deputy Spokesperson. After this year, I will only have one year left on my 3-year term. It will mean a great deal to me to complete a full 3-year term, whilst serving as faculty at a teaching institution. To my knowledge, this would be a first for the RHIC experiments. Challenges: Travel during the semester is always difficult with teaching obligations, as is fulfilling my meeting schedule. I don't really see any way around it, but it is a challenge.

S4. Positives: We are making progress on the blind analysis. Analysts have nearly finished a study of "mock data," verifying the viability of the procedure. The software and computing team has been able to address several challenges and fix some bugs in preparation for the official production of "blind data." Challenges: This is my single most difficult, frustrating, and discouraging task as deputy spokesperson. It is a job no one wants, coordinating an activity no one requested (was foisted on us by the external BNL program advisory committee). I often find myself a "middle man," taking flack from both the spokespersons office and the participating analysts. I will be extraordinarily happy when this task is completed, hopefully in a few months time.

S5. Positives: I completed my term as co-convenor of the TMD Session of the International Spin Symposium and attend the conference in Ferrara, Italy. It was a successful session of the conference and afforded a tremendous opportunity to work alongside the world's foremost experts in the field. I delivered the session summary talk in the closing plenary session of the conference, a high-profile event and opportunity to represent our department on an international scale. Challenges: Navigating the travel around my course obligations was a challenge, but the department was extremely supportive, in particular Drs. Larry Isenhower and Tim Head.

S6. Positives: This turned out better than I'd planned, as I was \*invited\* to present a report of my analysis effort at an the Fall DNP Meeting. Because I was in attendance, I was then invited to present a separate talk making a case for the STAR forward upgrade at the RHIC/AGS Users' open forum at DNP. The talks were well-received and, I believe, effective. Challenges: Again, coordinating travel around teaching is a challenge, but the department makes it "easy." Again, special thanks to Larry and Tim.

S7. Positives: The summer was productive for my analysis effort, and I was able to recruit a student (Roy Salinas) to work with me on a McNair scholarship. Challenges: Three new preps, plus grant submissions, plus "new faculty" obligations, etc., have made it very challenging to get analysis development done during the semester. Having prepped EPI and E&M (and after the spring EPII) will help going forward. I will continue to work on carving out time for analysis during the semester.

S8. Positives: As I mentioned in S7, I was able to recruit Roy into the analysis effort. We invited Carl Gagliardi to campus to discuss analysis possibilities with the nuclear group, and Mike has shown some interest in a few of the topics. We are working on coordinating the effort that will begin in earnest this summer. Challenges: mainly the aforementioned challenges of finding the time. I'll keep working on this.

S9. Positives: We submitted an NSF MRI proposal for the STAR forward upgrade with myself listed as co-PI and Dr. Donald Isenhower in a supporting role. Challenges: Aside from the normal time-consuming nature of grants, things were fairly smooth on this one. Here's to hoping it is successful!

S10. Positives: I was delighted that as a part of the MRI, ACU would machine 1/3 of the plastic scintillator for the upgrade. The department's support has been tremendous, as has Dr. Isenhower's expertise. Challenges: I have a bit of a learning curve, myself, but I've leaned heavily on Dr. Isenhower's expertise. Should the money come through, coordinating things will be challenging; but "in a good way."

S11. Positives: I was able to attend the STAR Collaboration Meeting at Lehigh University in Bethlehem, PA. Furthermore, this is where the ACU application for STAR membership was submitted and accepted. No real negatives to speak of, here.

S12. Positives: The STAR spin physics working group has been prolific, this year, in publishing work. I am gratified that ACU appears as the first institution on the member list. Challenges: Finding the time to complete my analysis so that ACU will be primary author is a major challenge, but it is an important one. Our funding office considers this a priority, so my main goal going forward is making the time to do this.

**Additional Scholarly/Creative Activities Not Included in Goals:**

**Chair's Evaluation of Goal Completion (completed by April 1)**

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     | X                    |

**Scholarship/Creativity (Overall rating by chair)**

| Unsatisfactory | Needs Improvement | Effective | Excellent |
|----------------|-------------------|-----------|-----------|
|                |                   |           | X         |

Numerous publications this year, demonstrate Dr. Drachenberg's commitment to scholarship. He also gained ACU membership into an elite research group, without being asked, and this action is very commendable. Thank you!

**Service**

**Service Goals for the Year (completed by June 1 by faculty member)**

Se1. Plan to participate in curriculum development discussions.

Se2. Plan to participate in activities with the Society of Physics Students (SPS)

**Reflections on Goals (completed by March 1 by faculty Member)**

Se1. Positives: I have been able to participate in curriculum development discussions. I have also been able to participate in some of the course assessment discussions. Challenges: It has at times been difficult to get a feel for the \*department\* vision for curriculum development. Specifically, the physics and engineering visions at times seem at odds with each other. Consequently it has occasionally been difficult to find common ground and a department-wide venue receptive to views such as my own.

Se2. Positives: Dr. Larry Isenhower has been very accommodating in allowing me to share the role of co-advisor with SPS. I've been able to attend weekly meetings and advise activities such as the Sigma Pi Sigma induction, Cosmic Cafe, and Roadshow. Challenges: No negatives. We have a fantastic group of students.

**Additional Service Activities Not Included in Goals:**

**Chair's Evaluation of Goal Completion (completed by April 1)**

| Not met | Met | Met with Distinction |
|---------|-----|----------------------|
|         |     |                      |

|  |   |  |
|--|---|--|
|  | X |  |
|--|---|--|

|                                   | Unsatisfactory | Needs Improvement | Effective | Excellent |
|-----------------------------------|----------------|-------------------|-----------|-----------|
| Service (Overall rating by chair) |                |                   | X         |           |

Jim has participated in most department events including leading department chapel. Jim has easily met all departmental expectations of service.

### Summary Assessment by Department Chair

#### Written Comments

1. Collegiality

Dr. Drachenberg actively works with all members of the department in a collegial fashion. This next year would be a good time for him to begin securing the artifacts demonstrating collegiality that the department outlines in its expanded criteria of T&P.

2. Progress toward tenure

Dr. Drachenberg is likely ahead of the typical "tenure clock" expectations of the university. Departmentally he is meeting or exceeding the expectations.

3. Progress toward promotion

Dr. Drachenberg is meeting or exceeding the departmental expectations for promotion.

4. Constraints on performance

During a year in which the department moved into a new building, the newness, frustrations regarding building issues, and allocation of research space determination, led to constraints of seamless integration regarding external factors affecting the department.

5. Comment on church membership

Dr. Drachenberg has found a church home and he and his family are actively engaged.

6. Other

ACU is very fortunate to employ Dr. Drachenberg. The department is extremely happy with the good fortune to work with him.

\_\_\_\_\_  
Faculty

\_\_\_\_\_  
Date

\_\_\_\_\_  
Department Chair

\_\_\_\_\_  
Date

