### Committee on Admissions & Enrollment

| Total Meetings: 18 | Meeting frequency: biweekly, 4-5 meetings per quarter | Average hours of committee work each week: 2 hours |

#### Listing of committee policies established or revised:
- New UC Davis holistic-review policy

#### Issues considered by the committee:
- Holistic Review
- Non-Resident Admissions
- Admission by Exception

#### Recommended procedural or policy changes for the coming year:
- Continued development of UC Davis holistic-review practices
Committee’s Charge

The Committee on Admissions & Enrollment (CAE) is a standing committee of the Academic Senate and its charge is the stewardship of the admissions process that includes selection of undergraduate students. The Academic Senate has authority (delegated to it by the Regents) to determine the conditions for undergraduate admission, what the degree requirements are, and what the curriculum should be.

Committee Narrative (2011-12)

CAE met 18 times during the 2011-12 academic year and considered issues pertinent to undergraduate admissions. The major focus of the committee during the year was holistic review, nonresident admission and admission by exception. Summaries of committee activities and new policies and procedures approved are provided on the ASIS CAE webserver for review.

Holistic Review:

CAE worked in conjunction with the office of Undergraduate Admissions (UA) to implement the new UC Davis holistic-review admissions policy that was adopted by the Davis Division of the Academic Senate on 6/3/11 (attached) — the HR Policy. Implementation of the HR Policy required the development and adoption of ancillary policies and procedures, in consultation with UA. These are described in detail in the attached meeting summaries and HR quantitative-assessment reports.

Non-Resident Admission

Because the University and the State of California face an era of severe budget constraints, increases in the enrollment of international and domestic non-resident students may become a partial solution to UC’s fiscal crisis, and discussions about appropriate levels of non-resident enrollment will likely continue in the context of a broader discussion about how to return the University to a sound fiscal basis. UC must seek a balance between fiscal concerns, its goal of enrolling a broad range of undergraduates, and its commitment to serving California residents, particularly its role as an engine of social mobility to lift the state economy and serve underrepresented populations who continue to grow in number and who desire and deserve access to UC. CAE discussed these issues and anticipates an increase in the enrollment of undergraduate non-residents who compare favorably with California residents admitted to UC Davis, in accordance with the Principles of Non-resident Enrollment authored by the UC Board of Admissions & Relations
Admission by Exception

Considerable discussion about the policy and procedures for admission by exception (ABE), for student-athletes in particular, occurred. Guidance and feedback regarding ABE was provided to UA, the Vice Chancellor of Student Affairs and an academic-senate Special Committee on Athletics. The Davis division of the academic senate later endorsed the following recommendations concerning ABE that were proposed by the Special Committee.

1. At the end of each calendar quarter, UA will prepare a report on the cases of all ABE applicants (ICA and non-ICA) that have been evaluated by UA and accepted for admission (with redactions necessary for privacy). This will be sent to the Academic Senate for informational purposes and routed to the Committee on Admissions and Enrollment and the Undergraduate Council. The report should include identifiers of the source of the ABE requests.

2. Policy and processes on the admissions of prospective student athletes who are likely UC eligible and "sponsored" by ICA should be established. The decisions to admit those applicants rest with UA, and those applicants should be held to the standards for admission, as assessed through holistic review, that are used for the general applicant pool.

3. In consideration of NCAA National Letter of Intent signing dates and accepting that some recruitment of student athletes falls outside of the fall term, appropriate measures of flexibility on the timing of UA evaluation of ICA sponsored applicants should be identified and approved by the Academic Senate (through its representative committees) after consultation with ICA and UA.

Respectfully submitted,
Ralph C. Aldredge, Chair
Committee on Admissions and Enrollment
Friday, Sept 16, 2011
1:00 pm – 3:00 pm


Not Present: N. Pan (sabbatical), L. J. Bossio, P. Burman

Introductions and Welcome: Chair Aldredge opened A&E’s first meeting and asked everyone to introduce themselves. The new Director of Undergraduate Admissions, Walter Robinson, was in attendance at this meeting. It was indicated that A&E will meet with an average frequency of every two weeks and that the ASIS web server will be used extensively for communication, scheduling meetings and dissemination of materials (on the white board).

Meeting Agenda: The meeting agenda consisted of the items (a) through (f) listed on the welcome letter sent by Chair R. Aldredge to A&E members before the meeting. Discussions and actions pertaining to these items are summarized below.

a. Calibration Process: for applicants with an HR score from another UC campus (e.g., UCLA), the translation of this HR score into an equivalent UCD HR score

Simulations of a calibration process based on the bin-filling approach and one of the calibration ideas proposed by O. Orgun is underway. The simulation by UA-contracted analysts Elias Lopez and Donalynn Owfook will involve the translation of the UCLA HR scores of last-year’s UCD applicants into one of seven bins, each associated with a distinct range of UCD CR2 scores. The goal of the simulation is to demonstrate the implementation of a robust computational algorithm that can be later used with the actual calibration process, when UCD HR scores are known and would then replace the CR2-score ranges used in the simulation. The results of the simulation will be discussed as early as September 30, at our next A&E meeting.

b. Tie-breaking Process: to be used in selecting applicants for admission once HR scores have been assigned

Work on the design of the tie-breaking process for final selection of applicants will resume at an upcoming A&E meeting, with the expected assistance of simulation results demonstrating the outcomes associated with proposed tie-break evaluation criteria.

c. Number of Reads of Applications with UCLA HR Scores: Two reads of applications from students whose HR scores from UCLA are expected to be 4
or 4.25 (instead of only one read): The concern is that UCD admission decisions might need to be delayed if we wait to receive each and every actual HR score from UCLA, to be later translated to a UCD HR score and averaged with the score from a single UCD HR read.

This proposal was approved by unanimous consent, with the understanding that the additional UCD HR reviews (as many as 7,500) would not overburden the UA staff and thereby diminish the overall quality and integrity of the HR review process.

d. Special Use of the Predicted Value (PV) Tool: for applicants with a predicted UCLA HR score that is not 4 or 4.25, it is proposed to use the translated HR score instead of reading the application to determine a UCD HR score when the actual UCLA HR score is later found to be either 4 or 4.25. The concern is that UCD admission decisions might otherwise be delayed due to the possible necessity of reading a large number of such applications toward the end of the admissions evaluation cycle.

This proposal was not approved. It was decided that UA should read as many of the applications as possible having actual UCLA HR scores of 4 or 4.25, until such a time as when continuing to do so would make it impossible to complete the HR evaluation and selection process on schedule.

After reviewing results of the UCB PV tool, it was decided also that the range of predicted UCLA HR Scores dictating additional HR evaluation at UC Davis will likely need to be adjusted/expanded (e.g., to 3.5-4.25) in order to reduce the number of applications with falsely predicted HR scores that must be later read (those with actual UCLA HR scores of 4 and 4.25).

e. Focused Supplemental Review (SR): Use focused supplemental-review (SR) questions, specifically requesting applicants to discuss challenges (e.g., disability), academic preparation, special talents, and leadership experiences rather than the more generic questions currently asked of students during UCLA's SR evaluation. UA believes that this would insure the receipt of more useful information that could provide added value in evaluating applicants selected for supplemental review at UC Davis.

The SR questionnaire sent by UCLA to its applicants was distributed. A proposed personal-challenge questionnaire based on that used at UC Berkeley during their augmented-review process was also distributed, and the benefits and disadvantages of each were discussed. The UCB-based personal-challenge questionnaire was approved by the committee for use at UC Davis.

f. Use of the SR Score: As an outcome of the SR evaluation of an applicant, a new HR score should be determined by UC Davis HR Team Leaders that
would replace the applicant’s original HR score. A point for discussion regarding this suggestion by UA is the extent, if any, to which the original HR score should be used in determining the new SR-derived HR score.

No consensus was reached on this matter, which will therefore be further discussed at the next A&E meeting. The benefits of maintaining a record of an applicant’s original HR score assigned prior to supplemental review were pointed out: this would facilitate assessment of (i) the effect of SR on the likelihood of admission and (ii) the effectiveness of SR (based on subsequent academic performance at UC Davis) in identifying atypical, well qualified applicants who might have otherwise been denied admission.

There was discussion also about whether admission or denial of applicants having undergone supplemental review should be based on a ranking of these students (i) with all other applicants (both SR and non-SR) on the same common scale or (ii) with other SR applicants only. It was pointed out that separate, independent selection processes are used at UC Berkeley for their AR (augmented review) and non-AR applicant pools. There is sensitivity at UC Berkeley to the potential perception that the likelihood of admission might be greater for applicants having received AR, in comparison with those who had not. This perception might arise due to the fact that the original HR scores of AR-referred applicants are generally lower on average than those of the non-AR applicant pool, while the acceptance rates within the two separate applicant pools are similar.

There was brief discussion also about the extent, if any, to which the SR-derived score should be based on the results of the original HR reviews by readers prior to SR; or whether the SR-derived score should be based entirely on an independent review, perhaps emphasizing a set of selection criteria different from that upon which the original HR score was derived. Related to this issue is the question of whether or not there should be a limit on the extent of increase of the HR score as a result of supplemental review.

A&E’s next meeting is September 30, 2011.
Committee on Admissions and Enrollment
Friday, Sept 30, 2011
1:00 pm – 3:00 pm


Not Present: N. Pan (sabbatical)

Overview: R. Aldredge asked for introductions for the benefit of the new members who were in attendance, Professor Prabir Burman and graduate-student James Addona. Chair Aldredge gave an overview about the charge of A&E and the adoption of holistic review (HR) at UC Davis. He highlighted the authority of the Academic Senate to determine the conditions for admission under Regent’s Standing Order 105.2(a)\(^1\) and A&E’s divisional role in advising on undergraduate admissions and enrollment. It was indicated that A&E will meet with an average frequency of every two weeks and that the ASIS web server will be used extensively for communication, scheduling meetings and dissemination of materials (on the white board).

Holistic review is a time-intensive process and collaboration among the UC campuses will be beneficial. Although the HR process at a given UC campus will generate HR scores peculiar to that campus, sharing of HR scores among campuses is encouraged by BOARS and is expected to reduce the overall HR workload. Currently, UCLA HR scores are used at both UCI and UCSD to reduce HR workload. At UC Davis, we plan also to use HR scores from UCLA, as well as HR scores from other campuses as they become available. However, we will calibrate scores received from other campuses with those assigned through our own HR process to ensure the most accurate interpretation of the scores received from a given partnering UC campus.

Meeting Summary: Discussions and actions pertaining to the agenda items (1) through (4) are summarized below.

1) **Calibration Process:** for applicants with an HR score from another UC campus (e.g., UCLA), the translation of this HR score into an equivalent UCD HR score

   Preliminary simulations of the calibration of UCLA HR scores, with fictitious UCD HR scores, have been completed. R. Aldredge and O. Orgun, with the assistance of Elias Lopez, will work toward finalizing the design and validation of the numerical algorithms that will be ultimately used to translate each UCLA HR score into an appropriate UCD HR score for a given

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\(^1\) Regent’s Standing Order 105.2(a)
http://www.universityofcalifornia.edu/regents/bylaws/so1052.html
Simulation results employing these algorithms will be presented at the next A&E meeting.

2) **Tie-breaking Process**: to be used in selecting applicants for admission once HR scores have been assigned

*Work on the design of the tie-breaking process for final selection of applicants will resume at an upcoming A&E meeting, with the expected assistance of simulation results demonstrating the outcomes associated with proposed tie-break evaluation criteria.*

3) **Use of the SR Score**: As an outcome of the SR evaluation of an applicant, a new HR score should be determined by UC Davis HR Team Leaders that would be used in place of the applicant’s original HR score in determining admission or denial. Points of discussion included the following:

   a. Whether a record of the original HR score should be kept

   *The benefits of maintaining a record of an applicant’s original HR score assigned prior to supplemental review were pointed out: this would facilitate assessment of (i) the effect of SR on the likelihood of admission and (ii) the effectiveness of SR (based on subsequent academic performance at UC Davis) in identifying atypical, well qualified applicants who might have otherwise been denied admission.*

   *It was decided by unanimous consent of the faculty that a record will be kept of the original HR scores of all applicants receiving supplemental review.*

   b. The extent to which the supplemental-review (SR) evaluation should be either independent or based on the results of the original HR review

   *There was discussion about the extent, if any, to which the SR-derived score should be based on the results of the original HR reviews by readers prior to SR; or whether the SR-derived score should be based entirely on an independent review, perhaps emphasizing a set of selection criteria different from that upon which the original HR score was derived. Related to this issue is the question of whether or not there should be a limit on the extent of increase of the HR score as a result of supplemental review.*

   *It was decided by unanimous consent of the faculty that the SR-derived HR score will be based on an independent review of the applicant considering any requested supplemental information received from the applicant; with the understanding that the SR-derived score will convey an overall competitiveness of the applicant that is judged to be*
comparable with that of a student having the same HR score who did not receive supplemental review.

c. Whether admission or denial of applicants having received SR should be based a ranking of these students (i) with all other applicants (both SR and non-SR) on the same common scale or (ii) with other SR applicants only

It was pointed out that separate, independent selection processes are used at UC Berkeley for their AR (augmented review) and non-AR applicant pools. There is sensitivity at UC Berkeley to the potential perception that the likelihood of admission might be greater for applicants having received AR, in comparison with those who had not. This perception might arise due to the fact that the original HR scores of AR-referred applicants are generally lower on average than those of the non-AR applicant pool, while the acceptance rates within the two separate applicant pools are similar. Vigorous discussion highlighted uncertainty about the effect on diversity possibly associated with selection of all applicants on a common scale. The possibility that separate selection processes could contribute to disparity in the quality of the SR and non-SR admitted pools was also acknowledged.

It was decided by unanimous consent of the faculty that admission or denial of applicants having received SR will be based a ranking of these students with all other applicants (both SR and non-SR) on the same common scale. The SR-derived score will be used for ranking only if it is better than the original HR score received prior to supplemental review.

4) Non-resident Admissions:

R. Aldredge briefly shared results of a recent UCOP SAIR study of the extent to which undergraduate-admissions practices at UC campuses are consistent with BOARS’ revised principle regarding non-resident admissions: that “Non-resident domestic and international students admitted to a campus should compare favorably to California residents admitted at that campus.” Although admissions outcomes at UC Davis are consistent with the former BOARS principle regarding non-resident admissions, data presented in the UCOP report suggest that in recent years undergraduate-admissions outcomes at UC Davis have not been consistent with the new, revised BOARS principle that will take effect with the next admissions cycle, in evaluating applicants for fall 2012.

Former BOARS principle regarding non-resident admissions: Non-resident domestic and international students should demonstrate stronger admissions credentials than California resident students by generally being in the “upper half of those ordinarily eligible” as stated in the Master Plan.
Analyses and conclusions presented in the UCOP SAIR report will be discussed further at the next A&E meeting.

A&E’s next meeting is at 2:15 pm on October 21, 2011 at the Registrar Office Studio.
Committee on Admissions and Enrollment  
Friday, October 21, 2011  
2:15 pm – 4:15 pm  

Members Present:  R. Aldredge (Chair), P. Burman, O. Orgun, J. Sorensen, J. Addona (GSA Rep.), W. Robinson (Ex-Officio)  


Consultants Present:  Brian Alexander, L. J. Bossio, Gillian Butler, Dar Hunter, Miguel Robinson  

Introductions & Updates  

Two consultants invited to attend the meeting were introduced. These were Brian Alexander, a program director in the Student Affairs Office of Technology, and Miguel Robinson, who is beginning his new appointment as a senior analyst with UA on 10/24/11.  

Dar Hunter summarized progress made by UA toward implementation of holistic review at UC Davis. Selection and hiring of external readers is underway, with reader training scheduled for Nov. 29 and 30 and the reading of actual applicant files beginning immediately thereafter.  

R. Aldredge summarized the essence of HR at UC Davis and its nuances in relation to versions implemented recently at UCI and UCSD. In particular, UCLA HR scores are used at UCI and UCSD to reduce HR workload. While UCD plans to also use HR scores from UCLA, and those from other campuses as they become available, we will calibrate scores received with those assigned through our own HR process to ensure the most accurate interpretation of scores received from partnering UC campuses.  

Meeting Summary  

1) Calibration: determination of the specific range of adjacent UCD score bins appropriate for possible assignment of applicants with a given UCLA HR score  

Simulations of the calibration of UCLA HR scores with UCD CR1 & CR2 score bins (serving as fictitious UCD HR scores) were completed independently by R. Aldredge and O. Orgun with 2011 admissions data provided by Elias Lopez and Donna Owfook. The simulation results presented (Tables 2A & 2B of the Appendix) demonstrate the self-consistent translation of UCLA HR scores to UCD score bins; that is, determination of the range of adjacent UCD bins appropriate for possible assignment of an applicant with a UCLA HR score, while preserving that applicant’s rank upon assignment relative to other applicants whose UCLA HR scores are also translated. Self-consistent translation was possible for only about 50% of applicants with UCLA HR scores.
scores when the entire pool (26,609) of these applicants was considered. It is believed that the rate of self-consistent translation will be higher when translating UCLA HR scores to actual UCD HR scores (when available), instead of CR1 or CR2 score bins, due to the similarity between the UCD and UCLA HR processes (which should rank applicants in a qualitatively similar manner). A calibration of the UCLA HR scores of applicants with their UCB HR scores (for applicants with both) can be performed to test this hypothesis.

O. Orgun investigated the effect of the calibration sample size, the number of applicants having both a UCLA HR score and either a UCD CR1 or CR2 score (the fictitious UCD HR score) that were considered, on the rate of self-consistent translation. Based on the results of his simulations, it is believed that a calibration sample size of 1,000 will be sufficiently large for reproducible mapping of UCLA HR scores onto UCD HR score bins, for different randomly selected sample groups.

2) Bin Filling (aka mini-tiebreaking): determination of the specific UCD score bin to which a given applicant’s UCLA HR score corresponds, among the range of allowable adjacent UCD score bins determined during calibration to ensure self-consistent translation. Note that the bin-filling process occurs after essentially all of the applicants without external HR scores to be translated have been evaluated by UCD readers and assigned to UCD HR score bins.

O. Orgun completed simulations of the bin-filling process using an algorithm that he developed. This algorithm ascribes a quantitative measure of incompatibility (aka “badness”) to each allowable potential UCD bin assignment for a specific applicant (A) with a given UCLA HR score. To determine the amount of incompatibility, each applicant (B) without a UCLA HR score who is already in one of the allowable assignment bins (as result of UCD HR) is first ranked relative to all other type-B applicants in the allowable potential assignment bins. The metric used for ranking could be, for example, a CR1 score or predicted UCLA HR score derived for each applicant B. Next, the rank of applicant A relative to all type-B applicants is determined using the same metric. The amount of incompatibility associated with the assignment of applicant A to a particular potential UCD bin (F) is then defined as the sum of (a) the total number of type-B applicants in all allowable assignment bins below bin F who rank higher than applicant A and (b) the total number of type-B applicants in all allowable assignment bins above bin F who rank lower than applicant A. The most appropriate UCD bin assignment for applicant A is the one resulting in the smallest amount of incompatibility, as defined above.

Results of the bin-filling simulations show non-uniformity in the distribution of applicants with UCLA HR scores among the UCD bins to which they are assigned (c.f., Table 2C of the Appendix). Specifically,
substantially more applicants are assigned to the lowest and highest UCD score bins than to the middle of the allowable range of assignment bins. This non-uniformity is consistent with the lack of a strong correlation between UCLA HR scores with either CR1 or CR2 scores, resulting in wide ranges of CR1 and CR2 scores for applicants within any given UCLA HR score bin (as exhibited in Table 2A). Since the bin-filling process forces all applicants with a given UCLA HR score into a narrow range of allowable UCD bins, it is then natural that most of the applicants originally in UCD bins outside of the allowable bin range will be forced into the lowest and highest allowable UCD bins, which are closer to the original bin locations than are the middle allowable bins.

It is believed that the distribution of applicants with UCLA HR scores among the UCD bins to which they are assigned will be more uniform when translating UCLA HR scores to actual UCD HR scores (when available), instead of CR1 or CR2 score bins, due to the similarity between the UCD and UCLA HR processes (which should rank applicants in a qualitatively similar manner). To test of this hypothesis, a calibration of the UCLA HR scores of applicants with their UCB HR scores (for applicants with both) can be performed, followed by a bin-filling simulation in which these applicants are assigned to bins originally containing either (a) applicants having UCLA HR scores but not UCB HR scores or (b) applicants having UCB HR scores but not UCLA HR scores.

3) **Tie-breaking Process**: to be used in selecting applicants for admission once HR scores have been assigned

Work on the design of the tie-breaking process for final selection of applicants will resume at an upcoming A&E meeting, with the expected assistance of simulation results demonstrating the outcomes associated with proposed tie-break evaluation criteria.

4) **Quality Control**

The specification and elaboration of “quality control” procedures at the end of the UCD HR process was suggested. These might include a “by-high-school” review, in which senior readers view an array of quantifiable academic data from applicants from the same high school to either validate decisions or identify apparent anomalies, as well as considerations to ensure complete review of applications from members of approved Native-American tribal affiliations.

Dar Hunter will present the details of components proposed for our quality-review process as well as a description of our supplemental review process at the next A&E meeting.
5) **Non-resident Admissions:**

At the A&E meeting on 9/30/11, R. Aldredge briefly shared results of a recent UCOP SAIR study of the extent to which undergraduate-admissions practices at UC campuses are consistent with BOARS' revised principle regarding non-resident admissions: that “Non-resident domestic and international students admitted to a campus should compare favorably to California residents admitted at that campus.” Although admissions outcomes at UC Davis are consistent with the former BOARS principle regarding non-resident admissions\(^1\), data presented in the UCOP report suggest that in recent years undergraduate-admissions outcomes at UC Davis have not been consistent with the new, revised BOARS principle that will take effect with the next admissions cycle, in evaluating applicants for fall 2012.

This agenda item was not addressed at the meeting on 10/21/11. Analyses and conclusions presented in the UCOP SAIR report will be discussed further at the next A&E meeting, on 10/28/11.

A&E's next meeting is at 2:15 pm on October 28 in 410 Mrak Hall.

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\(^1\) Former BOARS principle regarding non-resident admissions: *Non-resident domestic and international students should demonstrate stronger admissions credentials than California resident students by generally being in the “upper half of those ordinarily eligible” as stated in the Master Plan.*
APPENDIX

Calibration & Bin-filling Results: Translating 26,609 UCLA HR scores into Equivalent UCD CR2 score bins, initially containing 19,206 applicants Without UCLA HR scores (tie-breaking via CR1-score ranking)

<table>
<thead>
<tr>
<th>CR2 BINS</th>
<th>UCLA HR BINS</th>
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</thead>
<tbody>
<tr>
<td>19,206 Apps w/o UCLA HR</td>
<td>26,609 Apps with UCLA HR</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.5</td>
<td>1.5</td>
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<tr>
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<td>2</td>
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<tr>
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not to scale
### TABLE 2A: All Applicants with both UCD CR2 and UCLA HR Scores (26,609)

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<thead>
<tr>
<th>Bin No.</th>
<th>UCD CR2 Bin</th>
<th>UCD Bin Dist</th>
<th>UCLA Dist</th>
<th>Cum Dist</th>
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<td>1</td>
<td>1</td>
<td>344</td>
<td>457</td>
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<td>2</td>
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<td>4</td>
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<td>528</td>
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<td>2135</td>
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<td>1896</td>
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<td>Total in UCD Bins</td>
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<td>1653</td>
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<td>UCD Bin Dist</td>
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<td>6%</td>
<td>3.9%</td>
<td>6%</td>
</tr>
<tr>
<td>Cum Dist</td>
<td>11%</td>
<td>18%</td>
<td>21%</td>
<td>28%</td>
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### TABLE 2B: Calibration of all UCLA HR Scores (26,609) -- Mapping onto UCD CR2 Bins (48% conversion)

<table>
<thead>
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<th>Bin No.</th>
<th>UCD CR2 Bin</th>
<th>UCD Bin Dist</th>
<th>UCLA Dist</th>
<th>Cum Dist % Calib</th>
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TABLE 2C: UCLA (26,609) filling CR2 Bins initially with UCD only applicants (19,206) via Tiebreaking with CR1

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Committee on Admissions and Enrollment  
Friday, October 28, 2011  
2:15 pm – 4:15 pm


Members Not Present: N. Pan (sabbatical), W. Robinson (Ex-Officio)

Consultants Present: Gillian Butler, Dar Hunter, Miguel Robinson

Overview

At the meeting we discussed the calibration and bin-filling components of the process to convert each UCLA and UCI HR score into an appropriate UCD HR score, to allow the fairest comparison of applications receiving HR review at UCD with those receiving HR at another campus and not reviewed at UCD. We also discussed our need for an HR predictive-value (PV) tool for predicting UCLA HR scores, so that it can be decided when an application is received if it is likely to receive an HR score of 4 or 4.25 from UCLA or UCI and should therefore receive HR at UCD. Other topics discussed at the meeting include the tie-breaking process to be used in selecting applicants for admission and comparability of resident and non-resident applicants. Details are provided below.

Meeting Details

1) Calibration & Bin-filling:

Please refer to the attachment for a detailed discussion by R. Aldredge and O. Orgun of the results of calibration and bin-filling simulations performed to demonstrate the implementation and usefulness of these components of the new UCD HR process.

2) Tie-breaking Process: to be used in selecting applicants for admission once HR scores have been assigned.

There was brief discussion of the tie-breaking component of the selection process. R. Aldredge indicated that socio-economic factors are used at UCI and UCSD for tie-breaking, each applied separately and in a hierarchical manner to distinguish applicants deemed acceptable for admission from others with the same HR score (without further reading of application files). The tie-breaking process at UC Davis will also be algorithmic and not involve any further reading of application files. However, our process should involve a combination of multiple criteria (possibly including ELC status and other socio-economic factors, as yet to be determined), which were not heavily considered during prior review.
Work on the design of our tie-breaking process for final selection of applicants will resume at an upcoming A&E meeting, with the expected assistance of simulation results demonstrating the outcomes associated with proposed tie-break evaluation criteria.

3) Predictive Value (PV) Tool

There was discussion about use of an algorithm expected from UCOP for predicting the UCLA HR score of each applicant to UC Davis who has also applied to UCLA. The predicted UCLA HR score would determine whether or not the applicant’s file is read at UC Davis or whether the applicant’s score is converted into a UCD HR score through our algorithmic calibration and bin-filling process, in cases where the UCLA HR score is not known at the time that the application is received by UC Davis. We have decided to read all applications with UCLA HR scores of 4 and 4.25 and to convert the UCLA HR scores into a UCD HR score in all other cases.

Earlier, R. Aldredge and Dar Hunter discussed development of the PV tool with Tongshan Chang at UCOP. Dr. Chang indicated that he would provide us with a PV formula employing applicant data available at UC Davis. Three versions of the PV formula will be provided (for CA residents, domestic non-residents and international applicants), each one developed as the best fit of actual UCLA HR scores with a collection of applicant attributes pertinent to HR review. Once it is obtained from UCOP, UA analysts will use the PV formula to compare predicted and actual UCLA HR scores of all of last-year’s applicants to UC Davis as, as a verification test, before implementing it for use during the current admissions cycle.

4) Quality Control

There wasn’t sufficient time to discuss this topic. Dar Hunter will present the details of components proposed for our quality-review process as well as a description of our supplemental review process at the next A&E meeting.

5) Non-resident Admissions:

R. Aldredge shared results of a recent UCOP SAIR study of the extent to which undergraduate-admissions practices at UC campuses are consistent with BOARS’ revised principle regarding non-resident admissions: that “Non-resident domestic and international students admitted to a campus should compare favorably to California residents admitted at that campus.” Although admissions outcomes at UC Davis may have been consistent with the former BOARS principle regarding non-resident admissions, data presented in the

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1 Former BOARS principle regarding non-resident admissions: Non-resident domestic and international students should demonstrate stronger admissions credentials than California resident
UCOP report suggest that in recent years undergraduate-admissions outcomes at UC Davis have not been consistent with the new, revised BOARS principle that takes effect with the current admissions cycle, in evaluating applicants for fall 2012.

Data in the UCOP report suggests that lower standards for admission were used to select non-residents than those used for selection of residents. This possibility is consistent with the fact during the past admissions cycle, non-residents were compared only with other non-resident applicants and others receiving augmented review in determining admissibility, rather than with the larger pool including the vast majority of CA residents. This practice will be precluded during the current admissions cycle by the requirement of the new UCD HR policy that all applicants, both resident and non-resident, be compared together on the same ranking scale in selecting for admission.
Committee on Admissions and Enrollment  
Friday, November 18, 2011  
2:15 pm – 4:15 pm  


Members Not Present: P. Burman, N. Pan (sabbatical), J. Sorensen,  
Consultants Present: Gillian Butler, Dar Hunter, Miguel Robinson  

Overview  
At the meeting we received an update on the planning of HR-training activities and discussed a proposal for a new transfer-student selection process developed by BOARS for comment as well as the results of computational simulations of the algorithmic conversion of UCLA HR scores. Details are provided below.  

Meeting Details  

HR Training Update:  

The admissions office is making good progress and has prepared a manual for readers, which is ready to go to print. Training of readers is scheduled for November 29 and 30. Each reader will be given will be given feedback on their reviews of five files, given basic reviewing and scoring guidelines, then an additional ten applications to read for further training. Norming is planned for December 6th. At this time, there are 68 external readers and 44 staff readers (26.5 FTE). The cost of reading one application is estimated to be $2.75. Evaluation and scoring of applicants by readers will be performed remotely and transmitted electronically using software developed at UC Davis, from December 12 through January 31. About 53,000 applications are expected.  

BOARS Transfer Admissions Proposal:  

The committee discussed a proposal for a new transfer-admissions policy developed by BOARS for comment. A description of the new policy was made available on the whiteboard for review and comments were solicited from A&E by November 21. A summary of the comments and opinions regarding the proposal is provided as an attachment to these minutes. It was submitted to the Executive Council by the deadline stipulated.  

Computational Simulation of Calibration & Bin-filling:  

Please refer to the attachment for a detailed discussion by R. Aldredge and O. Orgun of the results of calibration and bin-filling simulations performed to demonstrate the implementation and usefulness of these components of the new UCD HR process.
Here is a summary of the comments and concerns about the transfer proposal expressed at the A&E meeting on Friday, November 18.

1. Selecting students most likely to graduate in two years would seem to represent a new objective of the transfer admissions process.

2. Although the proposal states that no applicant would be guaranteed admission under the new policy, it seems that applicants would be given the impression of a strong likelihood of admission if major-preparation requirements are met and that there would therefore be an implied guarantee of admission for some.

3. The proposal offers the potential of bridging the resource gap between 4-year institutions and CCs. This is a positive attribute of the proposal.

4. There is concern about whether faculty involvement would be sufficient for development of the UC Transfer Curricula

5. Emphasis on major prep may be problematic with declining course availability at CCs (resulting potentially in fewer who are deemed qualified to transfer)
Committee on Admissions and Enrollment
Friday, December 2, 2011
2:15 pm – 4:15 pm

Members Present: R. Aldredge (Chair), O. Orgun, J. Sorensen, J. Addona (GSA Rep.), W. Robinson (Ex-Officio)


Consultants Present: Lora Jo Bossio, Dar Hunter, Miguel Robinson

At the meeting we received updates on (a) the HR-training activities currently underway, (b) the numbers of applications received so far and (c) the operational implementation of HR algorithms for predicting UCLA HR scores and converting actual UCLA HR scores into UCD HR scores. R. Aldredge presented the draft of a new BOARS resolution regarding comparability of CA-resident and non-resident admits for discussion and feedback. We also discussed ideas for the tie-breaking process to be used for final selection of applicants for admission.

HR Training Update

Dar Hunter provided an update on HR training activities currently underway. Two separate reader-orientation sessions were held on campus earlier in the week, on November 29 and 30. There were many individuals from a variety of geographical, professional and ethnic backgrounds who all seemed passionate about their potential roles as readers in our HR process. As training continues, each prospective reader will have to meet norming targets to demonstrate adequate proficiency before designation as an official reader. Actual applications will be read beginning on December 12. Dar was commended at the meeting on her excellent work in structuring and organizing an excellent reader training program.

Applications for Admission

Walter Robinson shared preliminary data regarding the number of applications received for freshman and transfer admission, indicating a slight increase in the number of CA-resident applicants and substantial increases in both domestic-resident and international applicants for freshman admission over last year. There appears to have been a slight decrease in the overall number of transfer applicants over last year. Walter emphasized that the data is preliminary at this point and is subject to revision.

Operational Implementation of HR Algorithms

R. Aldredge provided an update on progress toward operational implementation of HR algorithms that have been developed. These include (a) formulas for predicting UCLA HR scores developed by Tongshan Chang and Erika Jackson at UCOP using multi-variable regression analysis of all UCLA HR scores assigned last
year and (b) algorithms and software codes developed by R. Aldredge and O. Orhan for converting UCLA HR scores into UCD HR scores.

Predicting UCLA HR scores

Consistent with UCD HR policy, all applications with actual UCLA HR scores of either 4 or 4.25 will be read this year, regardless of when the actual UCLA HR score becomes known. Accurate prediction of UCLA HR scores is necessary to ensure that the number of applications with UCLA HR scores that are read locally is not substantially greater than the number of applications with actual UCLA HR scores of 4 or 4.25, and thereby minimize reader workload. This will also minimize the fraction of applications with UCLA HR scores that need to be read toward or after the end of the scheduled reading time frame, as the actual UCLA HR scores become available. The attached document prepared by R. Aldredge summarizes progress made toward implementation of formulas provided recently by UCOP for predicting UCLA HR scores, including analysis to determine the range of UCLA predictive-value (PV) scores that should trigger local evaluation at UC Davis, consistent with local HR policy.

Three separate PV formulas were provided by UCOP, one for each of the following three groups of applicants who applied to UCLA last year: (i) CA residents, (ii) domestic residents and (iii) international applicants. It is expected that these formulas will be operationally implemented by Brian Alexander of UA on the same software platform (Cold Fusion) used for managing and processing applications, as they are received. In this way, the PV score of an applicant to UC Davis who also applied to UCLA can be determined immediately upon receipt of the application, which can then be immediately tagged for local HR review if warranted, without the need for human processing prior to HR review.

Converting UCLA HR Scores into UCD HR Scores

Descriptions of the algorithms and the results of simulations demonstrating their implementation were presented at past A&E meetings and are provided in a comprehensive report entitled “Converting UCLA HR Scores into UCD HR Scores (Algorithms & Simulation Results)” available on the ASIS A&E whiteboard. It is expected that these algorithms will be operationally implemented by Brian Alexander on the same software platform (Cold Fusion) used for managing and processing applications as they are received. At the end of our HR reading process, UCLA HR scores can be then automatically calibrated with UCD HR scores, and the UCLA HR score of each applicant can be then automatically converted into a unique UCD HR score, without the need for human intervention.

New BOARS proposal regarding non-resident comparability

A draft of a new BOARS proposal regarding comparability of non-resident applicants was discussed. The new proposal, as currently written, would reaffirm BOARS’ commitment to ensuring that non-resident applicants admitted at each UC
campus compare favorably with admitted CA residents at the same campus and require use of the same evaluation criteria and admission cut-offs for residents and non-residents at each campus, to the fullest extent possible. It would also require campuses to report to BOARS annually demonstrating the favorable comparability of their non-resident admits.

There were several comments about the proposal, including an opinion that we need to be more aggressive in admitting non-residents because of their lower enrollment yield rates, in comparison with those for residents. The need to assess the relative academic performance of the two groups after enrollment to confirm the effectiveness of admissions policies and selection decisions was also expressed. BOARS will discuss the proposal and adopt it with any revisions after its meeting with President Yudoff on 12/9/11.

**Tie-breaking for final selection of applicants for admission**

Ideas for tie-breaking for final selection of applicants for admission were discussed. The hierarchical single-criterion tie-breaking method in use at UCI and UCSD were reviewed. The committee was reminded that the UCD HR policy requires consideration of a set of multiple criteria. One idea proposed by Walter Robinson that garnered some interest was the selection of applicants meeting the largest set of criteria (based primarily on socio-economic factors) deemed by A&E to be most important. This idea will be explored further with the assistance of Miguel Robinson, who will perform analysis to examine the effect of different tie-breaking criteria sets on the characteristics of the admitted applicant pool using last-year’s admissions data.
Determining the Range of Predicted UCLA HR Scores that should Trigger local Evaluation

Prepared by Ralph Aldredge, 12/3/11
For internal review by members of the UC Davis Academic Senate Committee on Admissions & Enrollment and its consultants

Background

Consistent with UCD HR policy, all applications with actual UCLA HR scores of either 4 or 4.25 will be read this year, regardless of when the actual UCLA HR score becomes known. Accurate prediction of UCLA HR scores is therefore necessary to ensure that the number of applications with UCLA HR scores that are read locally is not substantially greater than the number of applications with actual UCLA HR scores of 4 or 4.25, so that reader workload can be minimized. Accurate prediction of UCLA HR scores will also minimize the fraction of applications with mis-predicted UCLA HR scores that need to be read near or after the end of the regularly scheduled reading time frame, as the actual UCLA HR scores become available.

Tongshan Chang and Erika Jackson at UCOP provided UA with separate formulas for predicting the UCLA HR scores of applicants in each of three separate applicant groups, (i) CA residents, (ii) domestic residents and (iii) international applicants. Each formula consists of a single polynomial expression: the sum of the quantitative measures of a wide range of applicant characteristics considered in the UCLA HR process, each multiplied (weighted) by an appropriate coefficient. The appropriate set of regression coefficients was determined for each applicant group from multi-variable regression analysis of the HR scores of all applicants to UCLA last year in the respective applicant group. Also provided by UCOP were correlation tables for each of the applicant groups showing the number of applicants receiving each possible combination of predicted value (PV) and actual HR score. Using the UCOP data, Miguel Robinson and Donalynn Owfook created a table showing the correlation between the PV and actual HR scores of last-year’s CA-resident applicants to UC Davis who also applied to UCLA (a subset of the group of all CA-resident applicants to UCLA).

The range of PV scores that will trigger a local HR read

The correlation between the PV and actual HR scores of last-year’s CA-resident applicants to UC Davis who also applied to UCLA prepared by Miguel and Donalynn was analyzed by R. Aldredge. The goal was to determine the optimal range of PV scores that should trigger a local read of applications for which we expect to receive a UCLA HR score (likely unknown when the application is received). The results of the analysis are presented in the attached charts, as Options A, B & C. Option A involves locally reading all applications to UC Davis from applicants who also applied to UCLA and have a PV between 4 and 4.25 (inclusive). Options B and C expand the group of locally read applicants to include PV ranges of 3.5-4.25 and 3-4.25, respectively. There were a total of 6,972 applications to UC Davis last year from students who received an HR score from
UCLA of either 4 or 4.25. The two columns of the correlation table that show the distribution of PV scores for these applicants is highlighted in grey on all of the attached charts.

In Option A, a total of 6,149 applications would be read, those having a PV between 4 and 4.25. The two rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, only 3,660 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (52% of the total). The rest (3,312 or 48% of the total) would still need to be read, possibly near or after the end of the regularly scheduled reading time frame, as the actual UCLA HR scores become available.

In Option B, a total of 10,857 applications would be read, those having a PV between 3.5 and 4.25. The three rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, 5,781 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (83% of the total). A remainder of 17% would still need to be read in this case. However, 3,885 extra applications (having actual UCLA scores of less than 4 or greater than 4.25) would have been read as well during the process.

In Option C, a total of 13,799 applications would be read, those having a PV between 3 and 4.25. The four rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, 6,209 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (89% of the total). A remainder of 11% of the total would still need to be read in this case. However, 6,827 extra applications (having actual UCLA scores of less than 4 or greater than 4.25) would have been read as well during the process.

The following table summarizes the results of the analysis discussed above.

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<th>Apps Read</th>
<th>Apps Read w/ 4–4.25 HR</th>
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Based on these results, the optimal range of PV scores that should trigger a local read of applications for which we expect to receive UCLA HR scores would seem to be between 3.5 and 4.25 (Option B). This would result in a local read of 83% of the total number of applications having actual UCLA HR scores of either 4 or 4.25, while significantly minimizing the number of extra applications that have scores outside of this range that would be also read in the process.

Notes:
1. The analysis above is based on application of the UCOP PV formula that was optimized for last-year’s CA residents. The accuracy of this formula in predicting the actual UCLA HR scores of this year’s applicants is unknown but expected to be similar to that reflected in the cross-calibration table discussed above, assuming that HR practice and outcomes at UCLA will be substantially similar to those of last year. In addition, it is assumed that comparable accuracy of the PV formulas will result when they are used to predict the HR scores of applicants to UC Davis who also applied to UC Irvine but not UCLA because of the similarity of the HR processes at UC Irvine and UCLA. When these additional applications from UC Irvine are considered, the overall number of applications that are tagged for local evaluation may become less than that indicated in the table above, although the percentages in the fifth column would be expected to be similar.

2. Analyses of the correlation between PV and actual HR scores for non-resident domestic and international applicants to UC Davis who also applied to UCLA, similar to that presented above, should also be performed in order to determine the optimal ranges of PV scores that should trigger a local read of applications from each of these groups. Absent the results of such analyses, the use of the same range of PV scores for these groups as that used for CA residents should be acceptable, given the relatively small numbers of non-resident applicants.

3. It is expected that UCOP will create PV formulas for use by UC Davis each year based on multivariable-regression analysis of actual HR scores assigned at UCLA during the most recent admissions cycle. However, the analysis presented above should be completed by UA at UC Davis each year based on updated PV formulas received from UCOP in order to evaluate their effectiveness and determine the optimal ranges of PV scores that will trigger local reads. This will be especially important as we begin to make use of HR scores from additional campuses other than UCLA in the future and perhaps begin also to focus on different and/or reduced ranges of externally-derived HR scores for further, local evaluation.

4. It would be prudent to take full advantage of UCOP assistance in providing PV formulas annually for prediction of HR scores assigned at UCLA (and eventually other campuses) and to focus our efforts on assessing the effectiveness of the local application of the PV formulas, as described above. The analysis presented above illustrates the importance of the accuracy of the PV formulas as well as the procedures and metrics used for measuring their effectiveness in reducing reader workload. Practicable assessments of the accuracy and effectiveness of any new PV formulas (such as the assessment measures defined in the table presented above) should be performed annually.

5. It would be worthwhile for UA to develop local PV formulas based on regression analysis of UCD HR scores, when available, to enable the
prediction of the UCD HR scores. These formulas would be potentially useful in our algorithmic process of converting HR scores received from other campuses into UCD HR scores; this process is described in detail in the document entitled “Converting UCLA HR Scores into UCD HR Scores (Algorithms & Simulation Results),” which is available on the ASIS A&E committee whiteboard. The UCD PV formulas might also be of interest to other UC campuses who might wish to use HR scores assigned at UC Davis to reduce reader workload, in order to identify a subset for further local review prior to receiving actual HR scores from UC Davis.
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- **Actual UCLA HR Score**
- **Total Apps Read with 3.5 - 4.25 PV:** 10,857
- **5,781 Apps Read with 4 - 4.25 Actual HR (83% of the total)**
- **6,972 Total Apps with 4 - 4.25 Actual HR**
- **3,885 Extra Apps Read (those with Actual HR not 4 or 4.25)**
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**OPTION C: Reading all apps with PVs between 3 and 4.25 (inclusive)**

- **13,799 Apps Read with 3 - 4.25 PV**
- **6,209 Apps Read with 4 - 4.25 Actual HR (89% of the total)**
- **6,972 Total Apps with 4 - 4.25 Actual HR**
- **6,827 Extra Apps Read (those with Actual HR not 4 or 4.25)**
Committee on Admissions and Enrollment
Friday, Dec. 16, 2011
2:15 pm – 4:15 pm
Registrar Office Studio

Present: R. Aldredge, Chair, O. Orgun, D. Hunter, G. Butler
L. J. Bossio, J. Sorensen, M. Robinson, W. Robinson,

Not Present: N. Pan (sabbatical), P. Burman, J. Addona, C. Bates

Admissions Update: W. Robinson reported that applications were being received and reading of those applications by UA has begun. He announced that the certification process for the readers was successful and that UA now has well trained readers. Eighty-eight readers have been certified to date; this figure rises to a total of ninety-two readers when combined with the in-house readers. It was also announced that a UC Davis recruiter based in Hong Kong is providing the campus a global reach.

R. Aldredge asked for clarification as to why UA was reading and scoring international and domestic non-resident applications at Davis rather than using predictive values (PVs). The response by UA was that the GPAs had to be recalculated, mixed records had to be sorted out, and data integrity checks had to be performed, requiring reading of all applications at this time.

Predicting UCLA HR scores: It was stressed that UA needs to do PV scoring for international and non-residents as well (those with UCLA HR scores of 4 and 4.25). The question is whether we have all the data points. To date, the PV tool from UCOP has not been implemented at UC Davis for international and domestic non-resident applicants.

Converting UCLA HR scores into UCD HR scores: The conversion process should be done at the end of the cycle. Orhan and Ralph will help UA in that process.

BOARS Resolution on Evaluation of Residents and Non-residents: The BOARS resolution stipulates that the evaluation and selection of non-resident applicants should be according to the same criteria and cutoff scores. The admitted non-residents should compare favorably to admitted California residents. Non-resident targets should preserve the integrity of the admissions process; Senate committees should ensure that the BOARS principles are met; annual reports should be submitted by each campus. The resolution will be communicated to the chancellors.
A&E members commented that the resolution needs to be strengthened. It needs to indicate that non-residents are an important segment of the student population at UC. The point that non-residents diversify and enrich each campus community needs to be stressed.

**BOARS Referral Pool Proposal for Admission of ELC 9%**: BOARS has proposed that admission committees should take ELC status seriously and consider admitting ELC applicants within a given percentile. BOARS further proposes that ELC applicants who do not receive an offer from any campus should be added to the regular referral pool and guaranteed admission to UC Merced. BOARS also suggested that ELC status could be considered for tie-breaking purposes, for example. However, there is no guarantee to admit students from the referral pool. Is guaranteeing admission to eligible applicants a realistic expectation? Can we afford to continue to this? Tie-Breaking will be discussed at a future meeting. Miguel has done some work on this, but nothing definitive at this time.

**Intercollegiate Athletics Review**: J. Addona’s comments on the ICA review are perceptive. A&E members are requested to comment using the “comment” feature on the whiteboard before the deadline of January 13. Some questioned whether the ICA’s eight guidelines will remain guidelines anymore.
Committee on Admissions and Enrollment
Thursday, Jan. 12, 2012
2:00 pm – 4:00 pm
410 Mrak Hall

Present: R. Aldredge, Chair, N. Pan, D. Hunter, G. Butler, J. Addona, C. Bates, M. Robinson, W. Robinson,


Admissions Update: W. Robinson announced that an Associate Director of Admissions was hired to start work in a month or so. B. Alexander was commended for building an excellent environment for holistic review (HR). Norming is currently being done weekly.

Converting UCLA HR Scores into UCD HR Scores: O. Orgun’s code is being used to do the conversion. Currently there are 581 individuals on it.

Bin-filling and Tie-breaking: Multiple criteria or attributes such low income, 1st generation, API (1-5), ELC (1-4), Veteran status, Foster, Native American status will be used for tie-breaking. The clustering appears to be between 4s and 5s and tie-breaking will take place at those points. It is estimated 4,700 had HR values of 4 at this time. This is a seed yr, a baseline yr. M. Robinson was asked to use 2012 data to on those that are UC Davis 4s and UCLA 3s and report the results at the next meeting. It is important that we do not create a system that disadvantages residents or non-residents.

BOARS Update: The transfer proposal is in process of revision.

ICA Review: J. Addona provided a very good analysis. We will need to look into best practices at other universities and replicate those. What direction we want to go is the issue. We need to continue to emphasize academics. The student comes first. R. Aldredge will summarize the discussion and transmit the committee’s comments on Jan. 13, 2012.

Commendation: R. Aldredge was commended by Director Robinson and Associate Director Hunter for the innumerable hours he spent over the last several months providing guidance and training to UA staff in holistic review.

Next Meeting: A&E is scheduled to meet Jan. 26, 2012 in Mrak Hall.
Committee on Admissions and Enrollment
Thursday, Jan. 26, 2012
2:00 pm – 4:00 pm
410 Mrak Hall


Not Present: D. Hunter, W. Robinson, C. Bates

Admissions Update: M. Robinson, Donalynn Owfook (analyst in UA) and O. Orgun recently met to learn more about bin filling and calibration using Python programming language. Three data sets were obtained from Brian Alexander and analyzed. A Statistical Analysis System or SAS was also employed for data analysis. Cold Fusion was another program that was utilized. UA said that they are on track and on target with their HR reviews. March 16 is decision day. HR scores have been obtained from UCLA. So far 5,300 students who applied to UCLA have been read at Davis and their scores were being mapped onto UCD HR scores. Comparisons of translated scores with actual scores will also be done.

Tie-Breaking Project: M. Robinson was assigned a project by Chair Aldredge at A&E’s previous meeting and Robinson presented his findings at this meeting. Robinson indicated that he performed frequency analysis on a series of variables for tie-breaking on smaller and smaller subpopulations using the 2012 application pool. The HR score ranges of interest for tie breaking were UC Davis = 4 and UCLA = 3. The variables used included low-income, first generation, API (1-5), ELC, Vet status, foster youth status, and Native American Indian status. The frequency of the individuals who possess any of these attributes appears to be consistent with the entire applicant pool. However, there appeared to be marked differences in the particular individuals who possess a
specific criterion for tie breaking when they are considered from the perspective of either the UC Davis or UCLA HR scoring.
Committee on Admissions and Enrollment  
Thursday, Feb. 9, 2012  
2:00 pm – 4:00 pm  
410 Mrak Hall


Not Present:  L.J. Bossio, D. Hunter, P. Burman, N. Pan

UA Update:  W. Robinson announced that all reads were done. Supplemental reads have now started. 1400 referrals were received and 700 are now confirmed, which is kind of low. 4,000 referrals would be the norm for a 49,000 applicant pool. Other campuses show higher numbers of referrals. More scores from UCLA are expected to be received in the coming days (about 17,000 total scores have been already received so far). Tie-breaking is a new frontier for UC Davis.

Tie-Breaking:  At A&E’s previous meeting, M. Robinson was asked to study the questions below and report his findings at this meeting. Specifically, Robinson was asked to consider applicants having Davis (HR=4) and for UCLA (HR=3) displaying the following attributes (variables): API (1-5), ELC (1-9), LOW INCOME, and FIRST GENERATION.

1. How many students with a given UCD HR score (e.g., 4) have at least one of the above characteristics?
2. How many students have two of these characteristics, then three, then four?
3. Then rank by ELC (highest more preferable)
4. Numbers (and percentages) of applicants that meet each characteristic.

M. Robinson’s analysis showed the following: While single variables produced the highest numbers, two-variable combinations produced moderate numbers, and three-variable combinations produced still more moderate numbers, and four-variable combinations produced the least numbers. Starting at the bottom is suggested at this time (having all four attributes) that gives the smallest number of students. At this meeting M. Robinson was asked to continue this experiment by adding more variables, such as being a single parent and a Native American (being a member of a federally recognized tribe) and present his findings at the next meeting.
More on Tie-Breaking: There was more discussion on tie-breaking. This discussion is best represented by J. Sorensen’s draft summary transmitted to A&E via email and printed below:

After looking at preliminary data, it was agreed upon that the following eight socio-economic criteria would be taken into consideration for tie-breaking purposes in order to rank applicants with the same HR score (in no particular order):

1) API (1-5)
2) ELC (1-9)
3) Low Income
4) First-Generation College Student
5) Foster Youth
6) Affiliation with Federally Recognized Native American Tribe
7) Veteran Status
8) Applicant is a Single Parent

Because “From a Single Parent Household” forms such a large group, it was decided that this category would not be taken into consideration at this time.

At this point, the categories will not be weighted, nor will there be a hierarchy of most significant to least significant regarding these socio-economic obstacles.

*It was decided that tie-breaking would begin with those applicants with the greatest combined number of socio-economic obstacles (the most possible being eight), and would then proceed to those with seven, then six, then five, etc., until the target number of admits is reached.

*In the event that further tie-breaking needs to occur within a category (for instance, we need to admit only 100 of the 500 with a combined three of the criteria listed above), we will select from the top those with the highest CR1 scores until the target number of admits is reached. [While the committee realizes this is not ideal because some factors will be counted twice, we decided to use CR1 scores because every student has a CR1 mechanically produced, and because the bulk of the CR1 score is comprised of hard academic criteria (GPA, test scores, A-G courses).]
*Similarly, in the event that further tie-breaking needs to occur even after we have admitted all students with any one of the criteria listed above (for instance, 1800 of 3500 HR=4 students have at least one of the criteria, and our target is greater than 1800), we will then select from the top (among those with none of the criteria above) those with the highest CR1 scores until the target number of admits is reached.

J. Sorensen also transmitted the following weighted formula of tie-breaking for future consideration and possible use:

The following formula is based on the assumption that 1) a combination of socio-economic indicators (SEI) should be considered for tie-breaking, 2) that those categories should be weighted to the extent possible with existing information, 3) that these criteria should, combined, be given relatively more weight than the academic indicators already contained in each student’s CR1 score (keeping in mind that the CR1 score already takes into consideration First Generation and other factors, but not to the extent that we’d like to see in the tie-breaking process), 4) that the total score will make applicants with one, several, or no socio-economic factors comparable in the end, and finally 5) that the score can be mechanically produced.

The points and weighting below is based on the assumption that CR1 has a maximum score of 12,500 and that if our cutoff is generally in the HR=4 range, these students will broadly have CR1 scores ranging from 3000-6000. [This range needs to be confirmed. At our last meeting, we noted that HR=1 scores had CR1 scores ranging from 6300-9800].

I have drafted the weighting in a “holistic” fashion, based on the read-sheets from the UCLA training we did last year. All of the relative weights are up for discussion and redistribution.

1) API (1-5)

I propose that points be distributed on a sliding scale based on the API of the applicant’s school. Applicants from lower API schools will be given more points, and those from relatively higher API schools will be given less.

API 1 = 1000
API 2 = 800
API 3 = 600
API 4 = 400

API 5 = 200

Range: 0 (school is not API 5 or lower) to 1000

Maximum points in this category: 1000

2) ELC (1-9)

I propose points be distributed on a sliding scale based on the applicants’ percentile achievement in their local context. Applicants in the top 1% of their class will be given the most points, and those in the top 9% would be given proportionally less. I propose that this category be weighted more heavily than API because we would like to reward achievement in context (i.e., what students did with their limited opportunities) more so than the simple fact of limited opportunity. This committee had previously discussed how ELC is also a relatively good indicator of “likeliness to succeed at UCD” in that students at low API schools who finish in the top X% have done the most with the opportunities they had (and get points for both API and ELC), but conversely, at higher API schools, finishing in the top X% is that much more difficult because of the competitive nature of those schools. Thus, being ELC at a relatively higher API school is also a strong indicator of “likeliness to succeed at UCD.”

ELC 1 = 3000

ELC 2 = 2800

ELC 3 = 2600

ELC 4 = 2400

ELC 5 = 2200

ELC 6 = 2000

ELC 7 = 1800

ELC 8 = 1600

ELC 9 = 1400

Range: 0 (applicant is not ELC) to 3000

Maximum points in this category: 3000
Keep in mind that by definition, ELC 1 students are the top 1% and so comprise a very small pool of applicants (my guess is that most ELC 1 students will have been admitted by other means already and would not be in this tie-breaking pool). The number of applicants affected of course increases as we move down to ELC 9.

By contrast, API 1 schools are by definition the bottom 10% (in terms of academic opportunity), and affect a relatively larger proportion (in fact all of ELC 1-9 combined, at least in terms of percentage). By giving points to API 5 and below, we are essentially giving bonus points to the bottom 50% (again, in terms of academic opportunity). Because API affects so many, it makes sense to weight it proportionally less. Some applicants will of course receive points from both categories.

3) Low Income

While ideally, this category could also be a sliding scale, our immediately accessible data indicates only federally defined low income or not.

Range: 0 (applicant is not from a low income household) to 1000 (applicant is)

Maximum points in this category: 1000

4) First-Generation College Student

Range: 0 (applicant is FG) to 1000 (applicant is not FG)

Maximum points in this category: 1000

For categories 5-8 below, each applies to a very small number of applicants, but in terms of the diversity of our campus and opportunity for these applicants, I propose that these criteria should be considered relatively more significant. Applicants are either identified as part of the group (1500) or not (0).

5) Foster Youth

Range: 0 (applicant is not FY) to 1500 (applicant is FY)

Maximum points in this category: 1500

6) Affiliation with Federally Recognized Native American Tribe

Range: 0 (applicant is not affiliated) to 1500 (applicant is)

Maximum points in this category: 1500
7) Veteran Status

Range: 0 (applicant does not have veteran status) to 1500 (applicant does)

Maximum points in this category: 1500

8) Applicant is a Single Parent

Range: 0 (applicant is not a single parent) to 1500 (applicant is)

Maximum points in this category: 1500

9) From a Single Parent Household

Though this category captures a large number of applicants, I think it should be considered as a socio-economic obstacle, though given relatively less weight than those above.

Range: 0 (applicant is from a single parent household) to 500 (applicant is not)

Maximum points in this category: 500

Maximum total points for all socio-economic indicators (SEI): 12,500

Maximum total CR1 score: 12,500

Total maximum: 25,000

By adding the CR1 score at the end, we guarantee that every applicant has a total score.

It seems that most applicants who would be subjected to tie-breaking in this manner would be getting 1/3rd or less of the total possible points, both in terms of SEI points and CR1 score. It is highly unlikely that applicants with no SEI points will be ranked higher than those with at least one of the nine criteria unless their CR1 scores are higher by a very large margin. Seeing what these scores would look like on a sample set, followed by a bit of data analysis, would be helpful in seeing how we might like the weighting to be distributed.

20/20 Initiative: Chair Aldredge spoke briefly about the Chancellor’s 20/20 Initiative. The initiative is about adding 5000 additional students, of which about 3000 are non-residents (national/international) and 2,000 are residents. Aldredge presented some data he acquired from attending a previous conference.
What admission rate is required to reach this target? Improving admission yield (currently 13%) and recruiting aggressively internationally would be necessary.

A&E’s next meeting is scheduled for Thursday, Feb. 23, 2012, in 410 Mrak.
Committee on Admissions and Enrollment  
Thursday, Feb. 23, 2012  
2:00 pm – 4:00 pm  
410 Mrak Hall


Not Present: D. Hunter, P. Burman

Admission Update: W. Robinson indicated that all the application reviews have now been completed. At this time, UA is doing tie-breaks. He indicated that there is now a target of increasing national/international students by 150 students. W. Robinson proposed the following tie-breaking approach:

1. **Level 1** = Veterans, Single Parent, Native American Affiliated in Federally recognized Tribe;

2. **Level 2** = (all 5 of these) low income, first generation, API 1-5, ELC, EAOP, (4 of 5), (3 of 5), (2 of 5), (1 of 5); and

3. **Level 3** = Scholastic Index 2, which is comprised of High School GPA Weighted/Capped 4.50 x 1,000 + Test 2400 + a-g 20 x 50 = 7,900 and then by going down the scholastic index until the target is reached.

Chair Aldredge pointed out that none of the criteria above was considered more important than another according to the model of tie-breaking agreed upon at the last meeting and the proposal above is therefore inconsistent with the approved model. There was insufficient analysis provided by UA to evaluate the merits of this proposal. There was concern on the part of UA about not having a working model in place for implementing tie-breaking, the model approved by A&E (attached) not having yet been implemented by UA analysts. Chair Aldredge pointed out that Orhan Orgun had developed an algorithm that implements the approved A&E tie-breaking model, for purposes of analysis of the potential outcomes, which could be used. Orhan then shared the results of this algorithm with the committee. It was then agreed that Orhan's algorithm, reflecting A&E's approved tie-breaking model, would be implemented by UA with Orhan's assistance in the next few days.
It was also agreed among the committee that an additional criterion of EAOP status would be added to those listed in the approved tie-breaking model.

**2020 Initiative – Enrollment Management:** Under the Chancellor’s 2020 Initiative, three task forces were formed: These are *Academic Resources*, *Enrollment Management*, and *Facilities Planning*. R. Aldridge is a member of the *Enrollment Management Task Force*. He reported that he attended a recent meeting of the task force and was impressed by the great modeling that was shown, which tracked students and their level of persistence over time.

**BOARS Transfer Proposal:** This proposal is on A&E’s whiteboard for comment. Members are requested to comment on the proposal before the deadline of May 2, 2012.

A&E’s next meeting is scheduled for March 8, 2012 in 410 Mrak.
CRITERIA FOR TIE-BREAKING
Approved by the Admissions and Enrollment Committee on 2/9/12
Amended on 2/23/12 to include EAOP status (reflected below)
Originally prepared by Joseph T. Sorensen, A&E committee member

After looking at preliminary data, it was agreed upon that the following eight socio-economic criteria would be taken into consideration for tie-breaking purposes in order to rank applicants with the same HR score (in no particular order):

1) API (1-5)
2) ELC (1-9)
3) Low Income
4) First-Generation College Student
5) Foster Youth
6) Affiliation with Federally Recognized Native American Tribe
7) Veteran Status
8) Applicant is a Single Parent
9) Applicant has EAOP status (approved on 2/23/12)

Because “From a Single Parent Household” forms such a large group, it was decided that this category would not be taken into consideration at this time.

At this point, the categories will not be weighted, nor will there be a hierarchy of most significant to least significant regarding these socio-economic obstacles.

*It was decided that tie-breaking would begin with those applicants with the greatest combined number of socio-economic obstacles (the most possible being eight), and would then proceed to those with seven, then six, then five, etc., until the target number of admits is reached.

*In the event that further tie-breaking needs to occur within a category (for instance, we need to admit only 100 of the 500 with a combined three of the criteria listed above), we will select from the top those with the highest CR1 scores until the target number of admits is reached. [While the committee realizes this is not ideal because some factors will be counted twice, we decided to use CR1 scores because every student has a CR1 mechanically produced, and because the bulk of the CR1 score is comprised of hard academic criteria (GPA, test scores, A-G courses).]

*Similarly, in the event that further tie-breaking needs to occur even after we have admitted all students with any one of the criteria listed above (for instance, 1800 of 3500 HR=4 students have at least one of the criteria, and our target is greater than 1800), we will then select from the top (among those with none of the criteria above) those with the highest CR1 scores until the target number of admits is reached.
Committee on Admissions and Enrollment  
Thursday, March 8, 2012  
2:00 pm – 4:00 pm  
408 Mrak Hall


Guest: Brian Alexander

Not Present: M. Robinson, P. Burman

Admission Update: W. Robinson indicated that UA was putting the final touches to selecting the freshman class. Decisions will be posted next Thursday. The freshman enrollment target this year is 4,900. It appears UA will meet that target. However, the target of 150 more non-resident students is unlikely to be met. W. Robinson thanked D. Hunter for her countless hours of work, O. Orgun for his algorithmic work in the tie-breaking area, and the committee for its imagination and advice. W. Robinson anticipates the committee can expect a robust discussion after May 1. He stressed that we may be establishing a new baseline depending on the outcome. The admit rate is anticipated to be 47%. The SR pool is smaller than was expected this first year of HR implementation.

UA’s technology and analytical support, Brian Alexander, said O. Orgun spent a good amount of time with the analysts using the Python programming language in determining the criteria for tie-breaking. He said predictive values used at Davis for UCLA were very close to actual UCLA HR scores. About 1,000 applicants were identified early on for calibration of UCD and UCLA HR scores, which were made available in mid-February. Chair Aldredge thanked and congratulated the UA staff and the A&E committee for their collective efforts and the tremendous progress made during the past year toward development and implementation of the new UC Davis HR process.

Wait List: The wait list last year was about 6,000 and it’s expected to be about the same number this year. Approximately 2200 offers to students on the wait list are planned. It was noted that those in the referral pool are not the most competitive students and that no reviews of students in the referral pool was conducted this year.
**BOARS Update:** R. Aldredge reported that at a recent meeting BOARS discussed online courses. Although more acceptances of online courses are anticipated in the future, there was a concern about the level of preparedness for non-matriculated students.

**2020 Initiative Subcommittee:** R. Aldredge summarized the results of data presented at the most recent meeting of the Enrollment Management subcommittee of the 2020-Initiative subcommittee. This data suggested the possibility of a net loss of annual revenue in the year 2020 and beyond associated with the enrollment of an additional 5000 undergraduates, 3000 of whom are national or international students), when additional costs are fully accounted for (e.g., for additional capital resources and new-faculty start-up packages).

**Executive Session:** Several issues were discussed.

A&E's next meeting is scheduled for March 22, 2012 in 410 Mrak.
Committee on Admissions and Enrollment
Thursday, March 8, 2012
2:00 pm – 4:00 pm
410 Mrak Hall


Not Present: M. Robinson, P. Burman, O. Orgun, N. Pan, C. Bates

Admission Update: W. Robinson thanked the committee for guiding and helping UA in the development of holistic review at Davis. He announced that admit decisions went out last Friday on March 16, 2012. More than 22,530 students were offered admission, of which 84% are California residents and 16% non-residents. The admit rate for Fall 2012 is 45.6% compared to 46% last year. The enrollment target is 4,900. We are admitting more California residents even as we admit more national and international students. The wait list now has 6,909 applicants. Some of the students in the wait list could also be on the referral list.

UA is now moving to a yield mode and then to transfer applicants. Yield events have been scheduled for admitted students locally, regionally, nationally, and internationally. The transfer event is scheduled for May 11.

Other Updates: Chair Aldredge announced that he plans to continue A&E’s bi-monthly meetings (every two weeks) for the spring quarter. Meetings will be scheduled soon.

BOARS Update: In May 2012, BOARS is expected to report to the Regents on the implementation of individualized/holistic review on UC campuses. Each campus is being asked to draft a two-page statement about how they have responded to the changes and how the implementation is proceeding. Some guiding questions are: What are the selection approaches compared to two years ago? What are the issues that have been identified and what lessons have been learned? How might have the applicant pool changed over the past two years? How has your campus dealt with increased ELC applications? What has the impact been on yield? Any other issues you have come up with? A draft will be prepared by UA in the next two weeks for discussion by A&E. In the long run, it is prudent to have longitudinal studies that assess admissions data compared to the past over a period of time.
Analytical Support and other Issues: There is a need for analytical support in UA. We also need new PV tools for the other campuses. Our most competitors are UCSB and UCI. UCSC used the Berkeley process this year and had only 4 readers for conducting holistic reviews.

Intercollegiate Athletics Report: A&E discussed some aspects of this report at this meeting and would like comments from members to be posted on the whiteboard. Responses are due by 4-12-12.
Committee on Admissions and Enrollment  
Wednesday, April 10, 2012  
3:00 pm – 5:00 pm  
410 Mrak Hall


Not Present: P. Burman, G. Butler, M. Robinson

Special Guest: Joe Kiskis

Introductions: The chair of the Special Committee on Athletics, Joe Kiskis was introduced. This was followed by an update from the Admissions Office.

Admission Update: W. Robinson announced that Decision Day was last Friday, April 6. Yield events are being held in several places and the reception in Asia was well attended. Also, the reception in southern California was successful. Decisions on transfer students are coming out soon. SIRs are now coming in. W. Robinson will be traveling to Saudi Arabia soon with Vice Provost Bill Lacy. An uptick of students from that country is expected at UC Davis.

BOARS Update: BOARS met this past Friday, April 6. There was discussion about transfer students. It was announced that there will be a cap on transfer units whether or not a student comes from a junior college or a four-year institution. The question was asked whether the transfer units were to be capped at 105. R. Aldredge will check on that. In addition, admission statistics were also discussed at BOARS. The data covering Fall 2010, Fall 2011, and Fall 2012 systemwide show that there were increases across the board. There was an increase in international students noted across all the campuses as well. The admission rates at Davis were 44.5% for California residents, 53.1% for out of state and 52.3% for international students.

20/20 Subcommittee: This committee meets every two weeks. At Davis, 2% of the undergrad international students are from Japan.

Special Committee on Athletics Report: Chair Aldredge reported that he forwarded his personal comments to the Executive Council regarding the Special Committee’s report, asking that the EC NOT endorse the report before hearing from A&E. Notwithstanding this request, the Executive Council endorsed the report at its meeting on April 6 so that the report could be considered for
adoption by the Representative Assembly at its regularly scheduled meeting on April 17.

**Discussion**: J. Kiskis reported that UA routinely admits UC-eligible athletes sponsored by ICA, even when these applicants are not competitive for admission with non-sponsored athletes. A point was made that admissions standards should be the same for all applicants, including non-athletes and those sponsored or supported by ICA or another campus units (e.g., Music). It was also argued that the authority for admission of a given student should not be delegated to ICA.

The athletics report makes a number of recommendations to the administration and aims to bring the Senate closer to the process. Strengthening the connections between the advisory committees and the Senate is one of the goals. Chair Aldredge identified two concerns in the report. These are on pages 12 and 13. Recommendation 1 and 4 are said to be of concern. Traditionally Academic Senate faculty have not been involved in individual admission cases and the report seems to encourage such intervention. Admission decisions should be made by UA, not ICA. There should be no implied assumption that ICA has authority over admissions. Therefore, the language in the report should be modified. Perhaps a statement should be inserted as follows: *ICA-sponsored applicants should be held to similar standards of competitiveness as assessed through holistic review and compared to other applicants.* Commentary on the report is due on April 12 and will be posted on the A&E whiteboard.

**Draft Report to BOARS on Transition to HR**: A rough draft is posted on the A&E’s whiteboard. This draft will not be finalized until the next A&E meeting.

**Executive Session**: A&E’s Academic Senate members discussed analytical support for A&E

The next meeting is on Tues, April 24 at the Registrar Office’s Studio.
Committee on Admissions and Enrollment  
Tuesday, April 24, 2012  
3:00 pm – 5:00 pm  
Registrar Office Studio


Not Present: Lora Jo Bossio

Admission Update: W. Robinson reported that he just returned from a visit to Saudi Arabia. There were over 300 universities (including 72 US universities) that were represented whose mission was to recruit Saudi students. Robinson reported that over 50,000 Saudi students come to the US every year to attend college. Davis currently has 33 such students—all in University Extension.

Robinson announced that transfer admit decisions were released last Friday, April 20th. Fall 2012 preliminary freshman data systemwide as well as by campus were distributed. Davis had a total of 42,543 applicants and admitted 18,922 or 44.5%. There were 4,086 international applicants out of which 2,137 were admitted or 52.3%. These applicants reportedly had strong academic scores. The admit rate for domestic out-of-state residents was 53.1% while that for transfer students was 58.1%. The academic profile of the transfer students was really good, with GPAs having grown from 2.99 to 3.25 and now to 3.73. UC San Diego has raised its GPA for transfer students to 3.5. It was reported that 470 more California residents were admitted this year than last year. Because of selective criteria for majors, Engineering required a minimum of 3.3 GPA this year

Report to BOARS on Transition to HR: A draft prepared by Chair Aldredge in conjunction with UA was reviewed. The draft was edited at the meeting and will be finalized soon. The report is being prepared in response to The Regents request to have BOARS submit a two-year report on comprehensive review and the implementation of holistic review for their July meeting.

BOARS Draft Statement on Online Courses: BOARS is developing a statement on online courses which is still in draft form. The statement will outline BOARS’s expectations of courses and programs for K-12 online learning. There is a disclaimer in the statement which states: “Participating in this educational program does not in itself provide preference in admission to the University of California. Students interested in applying to UC should contact
the admissions office of the UC campus they want to attend to find out the details of the admissions process.”

**Excess Units Cap Policy:** New policy would maintain the current 105 quarter/70 semester cap on transferrable units from a community college but extends the cap to lower division units earned at a four-year institution. Should there be any limits on UC courses?

**Institutional Analysis (IA):** Chair Aldredge will meet with folks in IA to pursue a study on performance outcome. The study will aim to find out how HR correlates with performance. O. Orgun will be assisting UA with analytical work.
Committee on Admissions and Enrollment  
Tuesday, May 8, 2012  
3:00 pm – 5:00 pm  
410 Mrak Hall  


Not Present: N. Pan, J. Sorensen  

Admission Update: SIRs have come in. Yield rates are higher than expected. Number of admits for international students is 46 above target. Chicano/Latino are down by 350 compared to last year. African Americans have increased by 30 students from last year. SIRs are dynamic (fluid). Yield rate for residents was 27.1%, last year it was 22.9%. Yield rate for the College of Ag, for example is 42% while for HArCS is 27%. Collaboration between campuses continues and has not changed. However, wait lists have increased across all the campuses. Admit rates are normally frozen as of the first week of April. Outcomes appear to be very good this year.  

BOARS Update: San Diego used two processes for admission last year. This year with HR their results are comparable to two years ago. UCB provided scores to Santa Cruz, but now is seeking payment for its services. The chair of A&E suggests payment per read instead of per score. Because Santa Cruz used the Berkeley rubric, it found itself with about 20,000 students that needed tie-breaking. They are in the process of reassessing their approach.  

The Academic Council is concerned that international students compare so favorably that they will be displacing residents. It is being suggested that for each resident displaced, the responsible campus should pay 150% of $6,000.  

Completion of SAT subject tests is an indicator of admissibility (there is a correlation). ETR and ELC give us the most diverse students but not necessarily the top students.  

2020 Initiative Enrollment Management: R. Aldredge recently met with G. Butler and Institutional Analysis Director Robert Loessberg-Zahl to explore trends in admission and longitudinal studies. Members were asked what they wished to see in terms of outcomes and attributes with student being admitted. Studies can be performed based on HR and based on SR, for example.
**2012-Cycle Data Analysis:** O. Orgun collaborated with staff in Undergraduate Admissions, and from that collaboration he projected data on ethnicity, applicants, and success rates. His data identified the California demographic representation, the representation in the admit pool, and the representation in applicant pool, etc.

At the next meeting, May 22, 2012, we can review J. Sorensen’s proposal.
Committee on Admissions and Enrollment  
Tuesday, May 22, 2012  
3:00 pm – 5:00 pm  
The Studio


Not Present: P. Burman, W. Robinson

Admission Update: D. Hunter reported that SIRs were going well. There may be duplicates in the SIRs, but the process is rolling nicely. Those that are wait-listed are seeing their applications denied, and now they are appealing. From 900-1200 appeals are expected. Traditionally, only a handful of the appeals are granted. For example, out of 600 appeals, only 12 were granted in the past, and most of these were special needs cases.

The percent of admitted who enrolled was defined as ‘yield.’ Biomedical Engineering has the highest take rate (yield) at 27.9%. The SIR yield for Biomedical Engineering is now higher than it was 3 years ago by 12%. HArCS has seen yield rates take off from 16% to 27.4%. Generally, the yield is going up. The College of Ag expects an over-enrollment by about 50 students while Biological Sciences expects under-enrollment by 35-50.

Nonresidents are below what was predicted (229 predicted vs. 125 SIRs). Internationals are over what was predicted (306 predicted vs. 352 SIRs). Most internationals enroll in Economics, Managerial Economics, and Political Science. Currently 396 internationals who didn't apply to Davis are being considered for admission.

BOARS Update: BOARS recently met by conference call. Accessibility and affordability were topics of discussion. Strategies on how to disburse financial aid were also discussed. The 2008-09 report of Prof. Robert Mare on holistic review of freshman admission at UCLA will be a topic of discussion at BOARS next meeting.

2020 Initiative Enrollment Management: R. Aldredge indicated that the 20/20 group recently met with student counselors and peer advisors to hear about their perspectives. These constituents were concerned about bringing more students to the campus. They asked about campus services to be improved.
for those who are already here. It was indicated that about 300 faculty will be hired in the next few years among whom will be Lecturers, SOE. 20/20 is a thorough process.

**J. Sorensen Proposal for Tie Breaking:** Sorensen’s proposal provides weighting to such factors as low income, API, ELC, etc. A concern was expressed whether we will be more California-centric as a result of adopting such a policy.

**Data Analysis & Tie Breaking:** O. Orgun presented his analysis about his findings on actual admits and unweighted admits for whites, African Americans, Latinos, Asian Americans, etc. His presentation also included a hypothetical Sorensen admit and Robinson admit, which showed slight differences in admits. Orgun’s next presentation will include an analysis of admits by major.

Not Present: P. Burman, Lora Jo Bossio

Guest: Ken Burtis

**Announcements:** This is the last meeting of A&E for the 2011-2012 academic year. As of September 1, 2012, R. Aldredge will step down as chair to assume the Vice Chair position at BOARS. The new chair of A&E will be Patrick Farrell. O. Orgun is retiring July 1, 2012.

**Token of Appreciation:** W. Robinson presented a gift to R. Aldredge to thank him for his leadership and tenacity in leading UA through the HR process. In turn, Chair Aldredge thanked UA for their high achievement quick adaptation to the changes that were implemented in the admission process.

**Admission Update:** Transfer outcomes were reported to be on target. TAG is a useful predictor. International students were reported to be 119 over target at UC Davis. Readers who participated in holistic review were sent a questionnaire and their responses aggregated. Among the questions were “what motivated you to participate in HR?” and assessing the quality and usefulness of the training materials.

**2020 Initiative:** Ken Burtis is the point person for the administration on the 2020 Initiative. The initiative comprises three task forces: Task Force on Academic Resources, Task Force on Enrollment Management, and Task Force on Facilities Planning. Burtis indicated that so far 10 meetings have been conducted. The recommendations or summary thoughts will be consolidated over the summer and mid-term reports will be released. He indicated that the process is complicated in that there are a number of moving parts. Everything is connected to everything. The goal is to have the process due by the end of the Fall Quarter.

**BOARS Update:** UCOP data show increase in SIR rates from last year.
Data Analysis & Tie Breaking: O. Orgun presented his analysis comparing outcomes using differing modalities. His presentation also included a hypothetical Sorensen and Robinson models, which showed slight differences in admits.
PROPOSAL FOR A UC DAVIS FRESHMAN ADMISSION PROCESS
BASED ON HOLISTIC REVIEW

Prepared by the 2010-2011
Admissions & Enrollment Committee
of the Davis Division of the Academic Senate

R. C. Aldredge & M. M. Rashid (Co-Chairs), O. C. Orgun, N. Pan, J. Sorenson

Background

The Resolution Regarding Individualized Review and Holistic Evaluation in Undergraduate Admissions (Appendix A) adopted by the UC Regents on January, 19 2011 requires (a) that each applicant to the UC receive an individualized, comprehensive review in which trained readers examine the applicant’s full file to evaluate accomplishments in the context of opportunity and (b) that single-score holistic review be the explicit means of comprehensive review. Single-score holistic review (HR) involves the assignment of a single score to an applicant on the basis of an individualized comprehensive review involving a human read of the entire application. The comprehensive review considers a wide range of both academic and non-academic achievements evaluated within the context of available high-school and life opportunities, while accounting for how fully the applicant has taken advantage of opportunities and resources. Fourteen specific comprehensive criteria considered are listed in the attached Guidelines for Implementation of University Policy on Undergraduate Admissions adopted by the Academic Senate in 2002 (Appendix B).

Currently, a two-stage, multiple-score implementation of comprehensive review is employed at UC Davis for evaluation of applicants and selection for admission. This process involves the combination of a purely computational evaluation which renders 87.7% of the final score and a reader's evaluation which renders the remaining 12.3% of the final score. Applicants with sufficiently high scores based only on the computational evaluation, for a given major, are admitted without an individualized human read of their application. This group represents 25-30% of the entire applicant pool. It is recognized, however, that as admission to UC Davis becomes increasingly more selective, individualized evaluation involving a human read of all applications will be necessary in order to fairly delineate between even the most competitive applicants, in accordance with the Regents Resolution. It is recognized also that such delineation is facilitated by evaluation of each applicant’s achievement within the context of available opportunities, accounting for how fully the applicant has taken advantage of opportunities and resources, also in accordance with the Regents Resolution and the guiding principles of comprehensive review outlined in Section II of Appendix B.

This proposal outlines the guiding principles and design of a new freshman admissions process at UC Davis based on single-score holistic review. The proposal also describes how UC Davis will collaborate with other UC campuses employing similar holistic-review processes (such as UCLA) to reduce the local workload and cost of holistic review and thereby contribute toward an increase in the efficiency of holistic review system-wide. A comparison of the single-score holistic-review processes employed at UCLA and UC Berkeley, upon which the proposed process is based, with the two-stage, multiple-score implementation of comprehensive review currently employed at UC Davis is given in Appendix C.

Assumptions and Constraints

It is assumed that UC Davis will make use of holistic-review (HR) score information provided by other campuses for applicants we share in common with those campuses. In many cases, UC Davis will
not re-read these shared applications. However, UC Davis will have to develop and maintain the ability to read and score applicant files locally, both to accommodate applicants for whom we have no HR score from another campus, and for other reasons. Specifically, in-common applications will be read at UC Davis if they fall within a particular score range, based on the HR score from the other campus. Also, a modest number of in-common applications from across the entire score range will be read locally, in order to establish the correspondence between locally-generated scores and those from the other campus. These features of the proposed process are described more fully below.

Although HR scores from a number of other campuses may eventually be available to UC Davis, it is assumed that, for the Fall 2012 cycle at least, UCLA scores are likely to be the only scores available. Therefore, the balance of this document refers to “UCLA” and “UCLA scores” with the understanding that, eventually, other campuses may be added to the list of score sources used by UC Davis. The process described below is designed to incorporate scores from other sources as they become available.

It is explicitly assumed that the relative assessment and weighting of the various factors in the UC Davis HR process will be very similar to those of the UCLA process. This assumption implies that, although the UC Davis and UCLA applicant pools may differ in some respects, the processes of the two campuses would result in a very similar ordering of UC Davis applicants.

It is further assumed that UC Davis knows in advance which applications are shared in common with UCLA, but that UC Davis has no control over, nor influence on, the timing of the receipt of score information for the common files. The campus is nonetheless obliged to complete all admit/deny actions by the mid-March deadline.

Guiding Principles

This proposal was designed with the following principles, goals, and objectives in mind:

1. Admit/deny decisions should be based, to the greatest extent possible within the bounds of practicality and resource constraints, on holistic evaluation of each applicant's file. This means, in part, that the process should resort to an algorithmic mechanism for distinguishing between applicants for admit/deny purposes in only a small number of cases. This “tie-breaking” process should be limited to cases where holistic evaluation cannot reasonably distinguish the level of merit among these cases. This principle carries implications regarding the design of the HR scoring rubric.

2. The process should aspire to a high degree of fairness and uniformity in the way applicants are treated, regardless of where, in addition to UC Davis, they may have applied.

3. Although the new HR-based process is certain to be somewhat more labor-intensive than the current UC Davis CR process, it should nonetheless exhibit the highest level of efficiency and economy possible, consistent with the other principles stated herein.

4. In keeping with longstanding practice at UC Davis, the new process should accommodate variability in the admission rate across different majors.

5. The holistic read process should be designed in such a manner that the lessons learned and procedures developed by other campuses should be utilized to the greatest extent possible, in pursuit of the principles enumerated herein.

6. The read process should be designed so that a high degree of reliability and high reader morale are likely to be maintained. This means, in part, that readers should not be asked to partition files into an excessively large number of ranks.
Process Design

The basic structure of the proposed process is as follows. At the beginning of the application-processing period, applications that are not shared in common with UCLA are scheduled for local reading. Two reads of all such applications are performed, much like in the UCLA process. In addition to the non-shared files, some of the in-common files (i.e., those shared by UCLA) are scheduled for reading as well. This “local re-read” pool consists of (a) applications from students with UCLA HR scores that are potentially not well differentiated at UCLA (e.g., those receiving a score of 4 or 4.25 from UCLA) but who are expected to be still competitive for admission at UC Davis, together with (b) a modest number of files from across the UCLA score range. The files in category (b) will be used for calibrating the UCLA and UC Davis scores to a common scale. Because UCLA scores will not all be available before reading of the local-re-read pool must commence, a statistical model of the UCLA scoring process will be used to determine a preliminary composition of this pool. The great majority of the local-re-read pool will consist of files associated with category (a). These files are expected to constitute as many as 15-20% of all UCD applications.

An important element of the proposed process is that admit-deny decisions will be made by establishing a single score cut-off, determined irrespectively of where the file was read. This element is particularly motivated by principle 2 above, but it also is consistent with a number of the other principles as well. Specifically, it facilitates the assignment of different cut-offs to different majors.

The details of the proposed process are as follows.

1. Davis readers are to be trained using the same principles and strategies of evaluation as are UCLA readers. As with the UCLA process, readers have 7 score levels to select from in scoring files. However, the “bin sizes” – i.e. the approximate proportions of the applicant pool that should fall within each score level – are not the same as at UCLA. Instead, they are set to fit UC Davis’s circumstances of selectivity. Specifically, the percentage of applicants within the top and bottom bins should be a multiple of 5 (e.g. the top 25% or the bottom 30%), with the other five bins of approximately equal size in between. The size of the top bin should be such that its lowest HR score is higher than the HR-score cut-off for the most selective major on campus, to accommodate admission of all applicants within the top bin. The size of the bottom bin should be such that its highest HR score is lower than that of all students accepted into the least selective major on campus, to accommodate potential denial of all applications within the bottom bin.

2. Consistent with UCLA’s process, two independent, blind reads of each Davis-only file should be carried out, in which local and UC Davis context information is used. In cases where the two scores are neighboring or identical, the final score for the file is the average of the two read scores. The reported scores can thus take one of 13 values. In cases where the two scores are not neighboring (i.e. they differ by more than one), a third read is undertaken by a senior reader, whose score stands as the final reported score. This procedure is identical to the UCLA procedure.

3. Again consistent with UCLA’s process, readers may recommend files for Supplemental review. The criteria and procedures governing Supplemental Review should be the same as in the UCLA process.

4. Applications in common with UCLA are subjected to an automated prediction of their eventual UCLA HR score using a multiple-linear-regression statistical model. The predictive model is necessarily calibrated on the previous year’s UCLA applicant pool. The predictor variables in the model consist of the range of quantitative indicators from the UCLA read sheet. The model
predictions are not used to influence the admit/deny decision for any student. Instead, they are used only to estimate which of the in-common files are likely to receive a UCLA HR score in the range selected for re-evaluation (e.g., 4 or 4.25). These files constitute the bulk of the in-common files that are to be re-read locally. Were UC Davis to wait until the actual scores arrived from UCLA, insufficient time might remain to read them all locally, prior to the decision-release deadline. By predicting UCLA score outcomes at the beginning of the reading period, UC Davis can get a head start on reading the in-common files that will, in all likelihood, have to be read. Should this prediction-driven process fail to mark for local reading a file whose actual score turns out to be in the range selected for re-evaluation (e.g., 4 or 4.25), then that file must be read locally as soon as is practical. The predictive model is also used to randomly select a modest number of files for calibration (e.g., on the order of 1000) whose scores are likely to uniformly cover the UCLA score range.

5. Because in-common files receiving a score from UCLA in the range selected for re-evaluation have already been read twice, these files should receive only a single local read. The “calibration” files (taken from throughout the score range), however, receive two local reads, in order to maximize the resolution of the calibration process.

6. All applicants, including those with UCLA-averaged scores and those with UC Davis-averaged scores, are ranked on a common scale. The UCLA-to-common-scale conversion is calibrated using the local read outcomes for the 1000 “calibration files.” The conversion also facilitates the assignment of a single common-scale score to each application with “mixed” HR scores (e.g., a 4 or 4.25 from UCLA and a separate, independent single read score from UC Davis).

7. At the end of the reading period, the integration of all applicant HR scores (whether derived at UCLA or UC Davis) into a common-scale is achieved using a fast, entirely algorithmic procedure. Recommended-admit cut-offs are then established on the common scale for each major. Applicants who fall near the cut-off on the common scale will be subject to an automated tie-breaking process. The tie-breaking process should not involve any additional reading by a human reader; instead, it should algorithmically combine multiple criteria to render a quantitative result.
Office of the President

TO MEMBERS OF THE COMMITTEE ON EDUCATIONAL POLICY:

ACTION ITEM

For Meeting of January 19, 2011

RESOLUTION REGARDING INDIVIDUALIZED REVIEW AND HOLISTIC EVALUATION IN UNDERGRADUATE ADMISSIONS

RECOMMENDATION

The President recommends that the Committee on Educational Policy recommend to the Regents that the following resolution be adopted:

WHEREAS, the University of California is committed to achieving excellence and inclusiveness in its undergraduate student body; and

WHEREAS, in May 1988, the Regents adopted a Policy on Undergraduate Admissions that states in part that “Mindful of its mission as a public institution, the University of California…seeks to enroll, on each of its campuses, a student body that demonstrates high academic achievement or exceptional personal talent and that encompasses the broad diversity of…backgrounds characteristic of California;” and

WHEREAS, in 2002, the University, acting on the recommendation of the Academic Senate, implemented an application evaluation procedure that calls for campuses to utilize a broad range of criteria to assess each applicant’s academic and personal achievement in the context of opportunities; and

WHEREAS, proper evaluation of applicants’ achievements in the context of opportunity requires that information about their schools and community be available in a uniform manner, and several campuses have made considerable progress in accomplishing this through the use of extensive school-based information; and

WHEREAS, evaluation of applicants’ achievement in the context of opportunities and challenges requires that a trained reader examine the entire application in considering personal achievements, challenges, leadership, and contributions to applicants’ communities alongside context information; and

APPENDIX A
WHEREAS, a form of Comprehensive Review in which the reader produces a single holistic score based on all information in the applicant’s file has been shown to thoroughly evaluate each applicant’s achievement in relation to opportunities and challenges; and

WHEREAS, the Regents expect the Office of the President, in consultation with the Academic Senate and local admissions committees, to exercise leadership in the realization of best practices in undergraduate admissions;

NOW, THEREFORE, BE IT RESOLVED that the Regents direct the President, in consultation with the Academic Senate and campus admissions professionals, to ensure that all applicants receive an individualized review that ensures trained readers examine applicants’ full files to evaluate their accomplishments in the context of opportunity;

BE IT RESOLVED that the Regents direct the President, in consultation with the Academic Senate and campus admissions professionals, to continue to research and develop a database to be used with the human read of every application that provides background on the available opportunities and challenges faced by the applicant within his or her school and community;

BE IT RESOLVED that the Regents direct the President, in consultation with the Academic Senate, to affirm that single-score holistic evaluation is the expected implementation of Comprehensive Review, while allowing flexibility for campuses that can demonstrate that alternate approaches employed by their campuses are equally effective in achieving campus and University goals;

BE IT RESOLVED that University of California campuses must remain committed to recruiting students from the full range of California high schools and regions in order to achieve the potential of the University’s admission policy for California’s students;

AND BE IT FURTHER RESOLVED that the Regents direct the President to annually report to the Board on the progress of these initiatives on each campus.

BACKGROUND

At the July 14, 2010, meeting of the Committee on Educational Policy, Board of Admissions and Relations with Schools (BOARS) Chair Sylvia Hurtado presented the BOARS report on Comprehensive Review in Freshman Admissions at the University of California, 2003 - 2009. Educational Policy Chair Regent Island requested an update on the progress of the recommendations in the report.

This resolution establishes the Regents’ expectations of the President, faculty and campuses with respect to the admissions process.

Following the adoption of the resolution, annual reports will be presented to the Committee on Educational Policy, starting in May 2011. The purpose of these reports is to highlight specific efforts towards achieving the University’s comprehensive review objectives.
GUIDELINES FOR IMPLEMENTATION OF UNIVERSITY POLICY ON UNDERGRADUATE ADMISSIONS

I. OVERVIEW

On May 20, 1988, The Regents of the University of California adopted a University of California Policy on Undergraduate Admissions. The Policy states in part that:

"Mindful of its mission as a public institution, the University of California...seeks to enroll, on each of its campuses, a student body that, beyond meeting the University's eligibility requirements, demonstrates high academic achievement or exceptional personal talent, and that encompasses the broad diversity of cultural, racial, geographic, and socio-economic backgrounds characteristic of California."

In December 1995, following passage the previous July of Regents Resolution SP-1, a task force convened by the President of the University reviewed existing Guidelines for the Implementation of University Policy on Undergraduate Admissions and recommended substantive changes. The revised Guidelines were issued in July 1996 and revised in May 2000 to reflect the University's newly adopted Eligibility in the Local Context (ELC) policy.

In May 2001, The Regents adopted Resolution RE-28, which rescinded Resolution SP-1 and reaffirmed the goals of the 1988 Policy as follows:

"the University shall seek out and enroll, on each of its campuses, a student body that demonstrates high academic achievement or exceptional personal talent, and that encompasses the broad diversity of backgrounds characteristic of California."

Following the passage of RE-28, the President asked the Academic Senate to consider the adoption of evaluation procedures that would look at applicants in a comprehensive manner and would utilize a variety of measures of achievement.

The present revision of the Guidelines follows extensive deliberation on the part of the Academic Senate, its Board of Admissions and Relations with Schools (BOARS), and its individual campus divisions and faculty admissions committees undertaken during the summer of 2001. The work of the Academic Senate built on themes already developed by the 1995 Task Force. For example, the report of the Task Force commented on the "need for a comprehensive review of the methods used for assessing academic performance, beyond utilizing criteria such as GPA and standardized test scores" and suggested that "the selection process could be altered in the future to include a more comprehensive approach to reviewing students' academic accomplishments and personal backgrounds." The work of the Academic Senate should be considered as yet another step in the continuing evolution of undergraduate admissions practices and policies.

Effective with applicants seeking admission for the fall 2002 term and thereafter, the following revised guidelines and procedures shall be followed for implementation of the 1988 University of California Policy on Undergraduate Admissions and RE-28, adopted in May 2001.

These selection guidelines apply to campuses that have to select from a pool of eligible applicants, and to students who have met the established UC eligibility requirements for admission. These eligibility requirements are established by the University in conformance with the specifications outlined in the California Master Plan for Higher Education, which specifies that the top one-eighth of the State's public high school graduates, as well as those community college transfer students who have successfully completed specified college work, be eligible for admission to the University of California.

These guidelines provide the framework within which campuses shall establish specific criteria and procedures for the selection of undergraduate applicants to be admitted when the number of eligible applicants exceeds the places
GUIDELINES FOR IMPLEMENTATION OF UNIVERSITY POLICY ON UNDERGRADUATE ADMISSIONS

available.

II. GUIDING PRINCIPLES FOR COMPREHENSIVE REVIEW

Campus admissions procedures should involve a comprehensive review of applications. BOARS defines comprehensive review as:

The process by which students applying to UC campuses are evaluated for admission using multiple measures of achievement and promise while considering the context in which each student has demonstrated academic accomplishment.

In designing campus procedures, campus admissions committees should adhere to the following guiding principles:

1. The admissions process honors academic achievement and accords priority to students of high academic accomplishment. At the same time, merit should be assessed in terms of the full range of an applicant's academic and personal achievements and likely contribution to the campus community, viewed in the context of the opportunities and challenges that the applicant has faced.

2. Campus admissions procedures should involve a comprehensive review of applications using a broad variety of factors to select an entering class.

3. No fixed proportion of applicants should be admitted based solely on a narrow set of criteria.

4. Campus policies should reflect continued commitment to the goal of enrolling classes that exhibit academic excellence as well as diversity of talents and abilities, personal experience, and backgrounds.

5. Faculty on individual campuses should be given flexibility to create admission policies and practices that, while consistent with Universitywide criteria and policies, are also sensitive to local campus values and academic priorities.

6. The admission process should select students of whom the campus will be proud, and who give evidence that they will use their education to make contributions to the intellectual, cultural, social, and political life of the State and the Nation.

7. The admissions process should select those students who demonstrate a strong likelihood that they will persist to graduation.

8. Campus selection policies should ensure that no applicant will be denied admission without a comprehensive review of his or her file.

Faculty takes their responsibilities for admission and selection very seriously. BOARS anticipates that campuses will act autonomously in designing campus-specific policies and processes that are consistent with Universitywide policies and guidelines. BOARS will continue to monitor campus policies and work with faculty to continuously improve the processes and outcomes.

III. SELECTION CRITERIA

Campuses receiving applications in excess of the number required to achieve their enrollment target for a specific term shall select students for admission as follows:

A. Freshman Applicants

The following criteria provide a comprehensive list of factors campuses may use to select their admitted class. Based on campus-specific institutional goals and needs, admissions decisions will be based on a broad variety of factors to ensure attainment of the goals set forth in the 1988 University of California Policy on Undergraduate Admissions and
GUIDELINES FOR IMPLEMENTATION OF UNIVERSITY POLICY ON UNDERGRADUATE ADMISSIONS

RE-28.

1. Academic Grade Point Average (GPA) calculated on all academic courses completed in the subject areas specified by the University's eligibility requirements (the a-f subjects), including additional points for completion of University certified honors courses (see 4, below). It is recommended that the maximum value allowed for the GPA shall be 4.0.

2. Scores on the following tests: the Scholastic Assessment Test I or the American College Test, and the College Board Scholastic Assessment Test II: Subject Tests.

3. The number, content of, and performance in courses completed in academic subjects beyond the minimum specified by the University's eligibility requirements.

4. The number of and performance in University approved honors courses, College Board Advanced Placement courses, International Baccalaureate courses, and transferable college courses completed. It is recommended that caution be exercised in order not to assign excessive weight to these courses, especially if considerable weight already has been given in the context of 1, above. Additionally, in recognition of existing differences in availability of these courses among high schools, it is recommended that reviewers assess completion of this coursework against the availability of these courses at the candidate's secondary school.

5. Being identified as eligible in the local context, by being ranked in the top 4% of the class at the end of the junior year, as determined by academic criteria established by the University of California.

6. The quality of the senior year program, as measured by type and number of academic courses (see 3 and 4, above) in progress or planned.

7. The quality of academic performance relative to the educational opportunities available in the applicant's secondary school.

8. Outstanding performance in one or more specific academic subject areas.

9. Outstanding work in one or more special projects in any academic field of study.

10. Recent, marked improvement in academic performance, as demonstrated by academic grade point average and quality of coursework (see 3 and 4, above) completed and in progress, with particular attention being given to the last two years of high school.

11. Special talents, achievements, and awards in a particular field, such as in the visual and performing arts, in communication, or in athletic endeavors; special skills, such as demonstrated written and oral proficiency in other languages; special interests, such as intensive study and exploration of other cultures; or experiences that demonstrate unusual promise for leadership, such as significant community service or significant participation in student government; or other significant experiences or achievements that demonstrate the applicant's promise for contributing to the intellectual vitality of a campus.

12. Completion of special projects undertaken either in the context of the high school curriculum or in conjunction with special school events, projects or programs co-sponsored by the school, community organizations, postsecondary educational institutions, other agencies, or private firms, that offer significant evidence of an applicant's special effort and determination or that may indicate special suitability to an academic program on a specific campus.

13. Academic accomplishments in light of the applicant's life experiences and special circumstances. These experiences and circumstances may include, but are not limited to, disabilities, low family income, first generation to attend college, need to work, disadvantaged social or educational environment, difficult personal and family situations or circumstances, refugee status, or veteran status.

14. Location of the applicant's secondary school and residence. These factors shall be considered in order to provide for geographic diversity in the student population and also to account for the wide variety of educational environments
B. Advanced Standing Applicants

Advanced standing applicants shall be selected by each campus using the criteria listed below as well as criteria 11-14 listed above. Priority consideration for admission of advanced standing applicants shall be given to upper division junior transfers from California Community Colleges.

Criteria to Select Advanced Standing Applicants

1. Completion of a specified pattern or number of courses that meet breadth or general education requirements.
2. Completion of a specified pattern or number of courses that provide continuity with upper division courses in the major.
3. Grade point average in all transferable courses, and, in particular, grade point average in lower division courses required for the applicant's intended major.
4. Participation in academically selective honors courses or programs.

(Refer to items 2 through 6 in Section A above for additional criteria to consider.)

IV. APPLICATION PROCEDURES

A common filing period for submission of applications shall be established by the Office of the President in consultation with the campuses. These dates shall be observed by all campuses and may be extended only if a campus determines that additional applications are required to meet enrollment targets. All applications submitted during the prescribed dates shall receive equal consideration for admission.

Applicants shall file one application on which they shall indicate all the campuses where they wish to be considered for admission.

Campuses shall observe and publish a common notification period for notifying applicants of their admission status.

V. ACCOMMODATION OF UC ELIGIBLE APPLICANTS

UC eligible resident applicants, who have not been admitted at any of the campuses of their choice shall be offered a space at other UC campuses where space is available. This process, called referral, reaffirms the long-standing University commitment to provide a place for every eligible California applicant who wishes to enroll.

In addition to the referral process, campuses may choose to offer other enrollment alternatives to UC eligible applicants. Examples of such alternatives may include:

1. Fall term admission to a different major,
2. Deferred admission to another term; or,
3. Enrollment at a community college with provision for admission at a later time, if a stated level of academic achievement is maintained (for freshman applicants only).

Last updated February 15, 2002.
Single Score Holistic Review Processes

UC Berkeley had been using comprehensive “holistic” review since 2001, and has refined the process over the intervening years. In 2006, UC Los Angeles became the second UC campus to implement a holistic evaluation process, basing its model on Berkeley’s process but also incorporating some locally developed measures regarding school context. UCLA trains readers to review files and assign a single score to candidates on the basis of a review of the entire application. No single attribute or characteristic guarantees the admission of any applicant. The review is based on a wide range of both academic and non-academic achievements, which are considered in the context of the available high school and life opportunities, and how fully the student has taken advantage of those opportunities and resources. UCLA considers all Comprehensive Review factors except for location of the applicant’s secondary school and residence (#14). Both Berkeley and UCLA devote a significant amount of time to norming student ratings and crosschecking the ratings of readers (see section on reader training). At UCLA, at least two readers review each file; whereas at Berkeley, students with the highest read score (less than 5% of applicants) and the lowest read scores are read once. Additional reads are used in the case of discrepant scores or if readers flag the student’s file for additional attention (called “augmented” review at UCB and “supplemental” review at UCLA). These third reviews sometimes require obtaining additional information from the student to clarify their case. Third reads can also “break ties” on cases where there are similar ratings and fewer places for students in score ranges that are near the boundary of normally admissible ratings. Details about the process and criteria are clearly described on campus websites.20 Finally, all UCLA and UCB applicants receive a review regardless of eligibility, which allows both campuses to make use of admissions by exception for unusual cases.

At the end of the process, several post-decision reviews determine if any decisions need to be reconsidered before admission offers are extended. This includes a By High School review, in which senior readers view an array of quantifiable academic data from applicants from the same high school to either validate decisions or identify apparent anomalies. Berkeley also undertakes a Weighted Index review that takes into account academic measures, socio-economic factors, and contextual factors weighted more heavily based on a scale of predicted outcomes derived from regression analyses of previous admissions cycles. This prompts a further review by the Director of Undergraduate Admissions for a final decision based upon criteria specified by the faculty admissions committee. At Berkeley, the faculty admissions committee also reviews the 100 admits with the lowest scores on the eligibility index to confirm the decisions.

Single score holistic processes, based on the judgments of trained readers, also undergo many cross checks based on quantifiable information on each file and indices. For example, in 2005-06, Berkeley also introduced a High Index Review as quality control that selects for further review applicants who have high test scores and/or grade point averages but received low reader

20 http://students.berkeley.edu/admissions/freshmen.asp?id=56&navid=N; http://www.admissions.ucla.edu/Prospect/Adm_fr/FrSel.htm
ratings. Senior readers look for any evidence that the original decision to deny admission should be reversed. Consequently, considerable deference is still given to “traditional” measures of achievement at the same time that they place great value on the expert judgments of readers to take into account multiple criteria in their ratings of applicants.

Assessment of Single Score Holistic Processes

The Berkeley and UCLA processes are distinctive for the single rating that is based on the large range of indicators that readers review. This includes approximately 28 school profile characteristics (Appendix G); a student’s ranking in terms of GPA (weighted and unweighted); and coursework and test scores relative to other applicants within the school, the pool of applicants to the campus, and the school’s applicants in the entire UC applicant pool. There is also a high degree of individualized student review to determine the merits of each case. Readers are instructed to review the student’s coursework and consider the strength of the senior year load, identify improvement in performance, and other indicators of striving for excellence that include honors and awards for academic accomplishments. Readers also consider extracurricular activities that demonstrate sustained involvement, awards, and commitment to service as evidence of potential contributions to the vitality of the campus, as well as life challenges and employment that might restrict engagement in activities. Readers are provided with a training manual to help identify significant student organizations, activities, awards, and seasonal sports. Finally, readers are provided copies of the Regents May 2001 resolution, the campus philosophy to guide selection developed by faculty, and instructions that they “may not under any circumstances use any information regarding race, sex, color, ethnicity or national origin that may be surmised from a reading of the application” in accordance with Proposition 209.

While the single score holistic method has many good features, the process has several limitations that one needs to bear in mind. First, it is extremely labor intensive and expensive because it relies on oversight and expertise of an experienced staff and external readers. Some may consider individualized attention to each file inefficient and less cost effective in the context of increasing applications and the short time frame for review. At the same time, it assures quality by using substantial information to make fine distinctions among applicants in a very competitive pool. Second, the single holistic score does not allow the campus to identify and provide additional consideration for students with extraordinary talents, leadership, and achievements outside of the academic criteria. Most private selective universities that employ an extensive individualized student review have a dual scoring system to favor the selection of “well rounded” students, or a small number of students with extraordinary personal accomplishments and more moderate academic scores. Considerable weight is given to “traditional” academic indicators in single score holistic processes. This was confirmed by the Hout Study\(^{21}\) of Berkeley’s holistic process in 2005, identifying grades were the most important determinant of readers’ scores. Third, this method is less transparent because students cannot know which criteria are valued most, nor calculate their own scores to assess the probability of admission. One can also reason, however, that this prevents students from “gaming” the system by focusing on only those areas that give them the most points and neglect other areas of excellence. The issue of transparency is addressed in a separate section (III-3).

Two Stage or Multiple Score Processes

Two-Stage or Multiple Score methods are also “holistic” in the sense that they consider many factors and employ the use of human reviewers to make judgments about non-quantitative information taken from the file that must be scored. Together, the multiple scores obtained through an individualized review constitute a comprehensive view of a students’ background and accomplishments. The main distinction from the Berkeley and UCLA processes is the assignation of specific points and weights to academic and personal accomplishment criteria based on principles and values as determined by faculty committees on the campus. Readers are then trained to read files and assign values in scoring in a way that is consistent with this philosophy. Otherwise, the read process is similar to the individualized student review used at Berkeley and UCLA.

UC Davis employs a two stage process that combines an electronic evaluation (87.7% of the final score) and a reader evaluation (12.3% of the final score) of academic and personal accomplishment criteria to determine an applicant’s final score. While the electronic evaluation score is generated from data based mainly on traditional academic indicators (criteria #1-3), it also incorporates ELC status (#5), EOP qualification, non-traditional student status, first generation college status, veteran status, (#13), individual initiative (#12), and evidence of marked improvement (#10). Although maximum weight is given to HS-GPA and the Sum of Standardized Tests, additional weight is given to ELC status in the point system—roughly equivalent to the maximum for the number of a-g courses (1000 points). The first score places the greatest weight on academic criteria, achievement in the local context, and also student background characteristics that influence achievement (12,500 point maximum). Thus, the first score gives somewhat more weight to students who have achieved in spite of disparities of circumstance. Using a sophisticated algorithm based on previous admissions results, students with the highest scores will be admitted without a second score based on a reviewer’s read. ELC students are actively recruited and also now receive a “fast track” pathway in admissions at Davis.

For all other Davis applicants, a second score (1,750 point maximum) is based on the reader evaluation that considers factors such as leadership promise and special talents/skills (criteria #11), participation in academic preparation programs, and evidence of educational perseverance in the face of difficult circumstances or disability (#13). Davis also implemented an Augmented Review process in November 2007 in order to conduct a more contextual review for certain unusual cases. The campus anticipates that as it becomes more selective, however, reader evaluations based on an individualized student review will be more necessary to make finer distinctions among all applicants.

At UC Santa Barbara, the Senate Committee on Admissions, Enrollment and Relations with Schools (CAERS) annually sets criteria that will enable the campus to achieve its goals of improving the quality and diversity of the incoming class and achieving specified enrollment targets. After assigning each applicant an academic index score called the Admissions Decision Model (ADM) based on high school GPA and test scores, the Comprehensive Review consists of an Academic Preparation Review (APR) and an Academic Promise Review (PPR). Applicants receive an APR score based on the academic factors comprising the ADM. The PPR score is based on a socio-economic status assessment and a read of the applicant’s personal statement,
Computational Simulations of the Conversion of UCLA Holistic-Review Scores into UCD Holistic-Review Scores
Prepared by Ralph Aldredge & Orhan Orgun, 11/16/11
For internal review by members of the UC Davis Academic Senate Committee on Admissions & Enrollment and its consultants

Overview

Holistic review (HR) is a time-intensive process and collaboration among the UC campuses will be beneficial. Although the HR process at a given UC campus will generate HR scores peculiar to that campus, sharing of HR scores among campuses is encouraged by BOARS and is expected to reduce the overall HR workload. Currently, UCLA HR scores are used at both UCI and UCSD to reduce HR workload. At UC Davis, we plan also to use HR scores from UCLA, as well as HR scores from other campuses as they become available. However, the new UC Davis HR admissions policy (attached) requires calibration of the HR scores received externally from other campuses with those assigned through HR at UC Davis to ensure the fairest interpretation of scores received externally for applications that are not read at UC Davis. At the end of the UCD HR-review reading period the integration of all applicant HR scores (whether derived at UCD or another UC campus) into a common-scale is achieved using a fast, entirely algorithmic procedure, as indicated in the UCD HR policy document (page 4, paragraph 7). Recommended-admit cut-offs are then established on the common scale for each major. Applicants who fall near the cut-off on the common scale will be subject to an automated tiebreaking process (not described herein), which will involve no further human reading but rely on an algorithmic assessment of multiple criteria for selection of applicants for admission.

At its meeting on 5/10/11, A&E unanimously approved the “bin-filling” method proposed by R. Aldredge for integrating all HR scores (whether derived at UCD or another UC campus) into a common-scale. This approach involves two components, (a) a calibration process in which a specific contiguous range of UCD HR scores appropriate for possible assignment of applicants with a given UCLA HR score is determined, followed by (b) determination of the specific UCD score to which a particular applicant’s UCLA HR score corresponds among the range of allowable UCD HR scores determined during calibration; this component is called bin filling. A detailed description of the bin-filling method is attached. The calibration process begins with the random selection of a modest number of applications having UCLA HR scores (e.g., on the order of 1000), uniformly distributed across the entire range of possible UCLA HR scores. Each of these applications is then read at UC Davis and assigned a UCD HR score. Based on each applicant’s UCLA and UCD HR scores, a calibration map is then determined algorithmically. The calibration map indicates the specific contiguous range of UCD HR scores appropriate for possible
assignment of applicants with a given UCLA HR score. Examples are provided in Tables 1 & 2 (discussed below) and in the diagrams that immediately follow.

A calibration procedure proposed by O. Orgun was presented at the A&E meeting on 5/10/11. This algorithm is designed to achieve a self-consistent mapping of UCLA HR scores to UCD HR scores when both scores are known. In other words, this algorithm determines the range of contiguous UCD HR scores appropriate for possible assignment of an applicant with a given UCLA HR score while preserving that applicant’s rank upon translation relative to other applicants whose UCLA HR scores are also translated. The algorithm was implemented independently by R. Aldredge and O. Orgun, on different software platforms, and identical computational results were obtained. These results were presented and discussed at the A&E meeting on 10/21/11. Also presented at this meeting were the results of bin-filling simulations, based on a separate algorithm developed by O. Orgun for this purpose and a calibration of UCLA HR scores mapped onto fictitious UCD HR-score bins (in lieu of actual UCD HR scores, which are currently unavailable). Descriptions of the detailed calibration and bin-filling procedures developed by O. Orgun are attached.

Additional simulations calibrating UCLA and UCB HR scores were presented at the A&E meeting on 10/28/11. These new simulations were performed to provide additional insight resulting from the consideration of HR-score data sets obtained from similar HR admissions processes. Our earlier simulations involved the calibration of UCLA HR scores with fictitious UCD HR scores derived from the previous UC Davis applicant evaluation process, which was comprehensive but non-holistic.

The results of the calibration and bin-filling simulations presented at the A&E meetings on 10/21/11 and 10/28/11 are discussed below, followed by the results of new simulations of translating UCLA HR scores into UCB HR scores and vice versa, after calibration of the two HR-score data sets as previously simulated. Collectively, the simulation results demonstrate the implementation and operability of the Orgun algorithms for the calibration and bin-filling components of the new UC Davis holistic-review admissions policy.

**Calibration Simulations**

These simulations involve determining the specific contiguous range of UCD HR scores appropriate for possible assignment of applicants with a given UCLA HR score.

**UCLA HR mapped to UCD CR2**

Simulations of the calibration of UCLA HR scores with UCD CR2-score bins (serving as fictitious UCD HR scores) were completed with 2011 UCD admissions data provided by consultants Elias Lopez and Donna Owfook. Only UCD applicants with known UCLA HR scores were considered in the simulation (a total of 26,609).
To create the CR2-score bins for use as fictitious UCD HR scores, applicants considered in the simulation were first ranked in accordance with their CR2 score, determined through the comprehensive but non-holistic applicant evaluation process in use last year. The applicants were then distributed across a total of 13 CR2 bins (numbered 1, 1.5, 2, ..., through 7) as illustrated in the second and last three rows of Table 1A. Applicants with the highest CR2 scores were placed in UCD CR2-score bin 1 and those with lower CR2 scores in higher-numbered, less-competitive bins. The distribution was chosen to be consistent with the expected distribution of scores assigned by UC Davis readers (bin sizes) approved by A&E on 7/5/11 (attached), allowing for the fact that many non-integral scores would result from averaging when the HR scores of two readers of the same application differ by 1, in accordance with UCD HR policy (c.f., page 3, paragraph no. 2 of the attached policy document). The approach was to assume initially a distribution across the integrally numbered CR2 bins (e.g., 1, 2, ..., 7) identical to that expected of the readers and then to populate the non-integral bins with the bottom quarter (according to CR2 score) of those in the more competitive adjacent integral bin and the top quarter of those in the less competitive adjacent integral bin. The result was the distribution shown in the second row from the bottom of Table 1A.

Table 1A shows the number of applicants with each possible combination of UCLA HR score and UCD CR2-score bin. The results show that many applicants with high UCLA HR scores (e.g., 4 or greater) are also in high-numbered CR2 bins (having received low raw CR2 scores). However, others with high UCLA HR scores are in low-numbered CR2 bins, having received very favorable evaluations at UCD but not at UCLA. Of perhaps greater concern is the number of applicants (although not substantial) in high-numbered CR2 bins who received low HR scores from UCLA, considering the more competitive nature of the admissions process at UCLA. Highlighted in black font are the allowable score combinations resulting from the calibration process, which are shown exclusively in the calibration mapping results presented in Table 1B.

The results in Table 1B demonstrate the self-consistent translation of UCLA HR scores into UCD CR2-score bins; that is, determination of the range of contiguous CR2 bins appropriate for possible assignment of an applicant with a UCLA HR score, while preserving that applicant’s rank upon assignment relative to other applicants whose UCLA HR scores are also translated. For example, according to the non-zero entries in the table, applications with a UCLA HR score of either 1, 1.5, 2 or 2.25 would all be assigned to a CR2-score bin of 1 (assuming that they were not read at UC Davis). However, applicants with a UCLA HR score of 2.5 could be potentially assigned to a CR2-score bin of 1, 1.5, 2 or 2.5. Self-consistent translation into CR2-score bins was possible for only 48% of the applicants having UCLA HR scores when the entire pool (26,609) of these applicants was considered. The results were only slightly better when CR1 bins were created and used in place of CR2 bins (50%, in this case)—not presented herein. It was hypothesized that the rate of self-consistent translation would be higher when calibrating UCLA HR scores with
actual UCD HR scores (when available), instead of CR1 or CR2 score bins, due to the similarity between the UCD and UCLA HR processes (which should rank applicants in a qualitatively similar manner).

**UCB HR mapped to UCLA HR**

To test the hypothesis stated directly above, a calibration of UCLA HR scores with UCB HR scores (for applicants with both) was performed. The results, presented in Tables 2A & 2B, show self-consistent translation of UCLA HR scores into UCB HR scores for 70% of the 18,902 applicants to UCD for fall 2011 having both UCLA and UCB HR scores. This supports the hypothesis that higher self-consistent translation rates should be achieved when calibrating UCLA HR scores with actual UCD HR scores (when the latter become available) instead of with UCD CR1 or CR2 score bins, due to the greater similarity between the UCLA and UCD HR processes in comparison with that between the UCLA HR process and our previous non-holistic evaluation process used to generate the CR1 and CR2 scores.

The correlation between UCLA and UCB HR scores presented in Table 2A highlights the differences between the UCLA and UCD HR processes in the overall assessment of admissibility, notwithstanding the substantial similarity of the two HR processes. For example, 62% of all applicants to UCD for fall 2011 who also applied to both UCLA and UCB (18,902 total) received an HR score between 4 and 5 (inclusive) from UCB while only 43% of the same applicants were assigned an HR score between 4 and 5 from UCLA. On the other end of the spectrum, 7% of the applicants received a score between 1 and 2 from UCB while 11% received a score within the same range from UCLA. This illustrates the importance of calibration in properly interpreting HR scores from other campuses, to fairly and adequately compare applications not read at UCD with those receiving in-house HR review, while mitigating biases associated with cross-campus differences in selectivity.

**Bin Filling**

These simulations involve determination of the specific UCD score bin to which a given applicant’s UCLA HR score corresponds, among the range of allowable contiguous UCD score bins determined during calibration to ensure self-consistent translation. Note that the bin-filling process occurs after all of the applicants without external HR scores to be translated have been evaluated by UCD readers and assigned to UCD HR score bins.

O. Orgun completed simulations of the bin-filling process using an algorithm that he developed. This algorithm ascribes a quantitative measure of incompatibility to each allowable potential UCD bin assignment for a specific applicant (A) with a given UCLA HR score. To determine the amount of incompatibility, each applicant (B) without a UCLA HR score who is already in one of the allowable assignment bins (as result of UCD HR) is first ranked relative to all other type-B applicants in all of the allowable potential assignment bins. The metric used for ranking could be, for example, a CR1 score or predicted UCLA HR score.
derived for each applicant B. Next, the rank of applicant A relative to all type-B applicants is determined using the same metric. The amount of incompatibility associated with the assignment of applicant A to a particular potential UCD bin (numbered N) is then defined as the sum of (a) the total number of type-B applicants in all allowable assignment bins numbered higher than N (in less competitive bins) who rank higher than applicant A and (b) the total number of type-B applicants in all allowable assignment bins numbered lower than N (in more competitive bins) who rank lower than applicant A. The most appropriate UCD bin assignment for applicant A is the one resulting in the smallest amount of incompatibility, as defined above.

**UCLA HR translated into UCD CR2**

Results of the bin-filling simulations for translating UCLA HR scores into CR2-score bins are presented in Table 1C. The results show non-uniformity in the distribution of applicants with UCLA HR scores among the UCD CR2-score bins to which they are assigned. Specifically, substantially more applicants are assigned to the lowest and highest CR2-score bins than to the middle of the allowable range of assignment bins. This non-uniformity is consistent with the lack of a strong correlation between UCLA HR scores with CR2 scores, resulting in a wide range of CR2-score bins for assignment of applicants with a given UCLA HR score (as exhibited in Table 1A). Since the bin-filling process forces all applicants with a given UCLA HR score into a relatively narrow range of allowable UCD bins, it is then natural that most of these applicants (who might have been otherwise placed into UCD bins outside of the allowable UCD bin range had their applications been read at UCD) will be forced into the lowest and highest allowable UCD bins, which are closest to the bins into which the applicants might have otherwise been assigned.

**UCB HR translated into UCLA HR**

As a follow-up to the simulations of filling UCD CR2 bins with applicants having UCLA HR scores a calibration of UCLA and UCB HR scores was performed (as described above), followed by a bin-filling simulation in which applicants having UCB HR scores but not UCLA HR scores were assigned to bins that originally contained applicants having both UCLA and UCB HR scores. Bin filling was accomplished by ranking via CR1, as described above. The calibration results presented in Tables 2A & 2B have been already discussed, while the bin-filling results are presented in Table 2C.

Table 2C shows that 61% of all applicants having UCB HR scores but not UCLA HR scores (totaling 6,249) would be assigned a UCLA HR score between 4 and 5 through the bin-filling process. All of these applicants had a UCB HR score of either 4 or 5. However a significant number of additional applicants with a UCB HR score of 4 (18% of the total) would have been assigned a UCLA HR score of either 3 or 3.5 through the bin-filling process. This is consistent with the fact that a significant number of applicants in the target UCLA HR bins (having both UCLA and UCB HR
scores) with a UCB HR score of 4 actually received an HR score of either 3 or 3.5 from UCLA, as illustrated in Table 2A.

Bin-filling simulations were performed for two additional cases, involving (a) UCB-HR source bins (6,249) with target bins initially containing applicants with UCLA HR scores but not UCB scores (7,707) and (b) UCLA-HR source bins (7,707) with target bins initially containing applicants with both UCLA and UCB HR scores (18,902). The results for case (a) were identical to those presented in Table 1C, and the results for case (b) were qualitatively very similar.

**Calibration-Map Diagrams**

Calibration-map diagrams illustrating the correspondence between source and target HR-score bins, based on the data in Tables 1 and 2 and for case (b) defined directly above are attached (numbered 1, 2 & 3, respectively).

**List of Attachments**

1. Tables 1 (A-C) & 2 (A-C) presenting the results of calibration and bin-filling simulations
2. Calibration-map diagrams for the calibration simulations performed
3. UCD Holistic-Review Policy (approved by the Academic Senate, 6-3-11)
4. Bin-filling method of HR-Score Mapping (approved by A&E, 5-10-11)
5. UCD HR Bin Sizes (approved by A&E, 7/5/11)
6. Detailed descriptions of Orgun’s calibration and bin-filling algorithms
7. Calibration and bin-filling software codes (Python and MatLab)
### TABLE 1A: All Applicants with both UCD CR2 and UCLA HR Scores (26,609)

<table>
<thead>
<tr>
<th>Bin No.</th>
<th>UCLA HR</th>
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<tbody>
<tr>
<td>1</td>
<td>344</td>
</tr>
<tr>
<td>1.5</td>
<td>451</td>
</tr>
<tr>
<td>2</td>
<td>687</td>
</tr>
<tr>
<td>2.25</td>
<td>528</td>
</tr>
<tr>
<td>2.5</td>
<td>473</td>
</tr>
<tr>
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<td>232</td>
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<tr>
<td>5</td>
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</tr>
<tr>
<td>Total</td>
<td>2997</td>
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<table>
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<tr>
<th>UCD Bin Dist</th>
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<tbody>
<tr>
<td>Cum Dist</td>
<td>11%</td>
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### TABLE 1B: Calibration of all UCLA HR Scores (26,609) -- Mapping onto UCD CR2 Bins (48% conversion)

<table>
<thead>
<tr>
<th>Bin No.</th>
<th>UCLA HR</th>
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<tr>
<td>1</td>
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**TABLE 1C:** UCLA (26,609) filling CR2 Bins initially with UCD only applicants (19,206) via Tiebreaking with CR1

**UCD CR2 Bin**

- **Total Mapped:** 5083
- **Mapping Dist:** 19%
- **Cum Dist:** 19%
- **UCD Only:** 2112
- **Original Dist:** 11%
- **Cum Dist:** 11%
- **UCD Only + UCLA Mapped:** 7195
- **Mapped Percent of Total:** 77%
- **Score Dist after Mapping:** 16%
- **Cum Dist after Mapping:** 16%

**Percent Distances:**

- **UCD CR2 Bin:**
  - Bin 1: 2%
  - Bin 2: 2%
  - Bin 3: 5%
  - Bin 4: 14%
  - Bin 5: 22%
  - Bin 6: 30%
  - Bin 7: 40%
  - Bin 8: 50%
  - Bin 9: 68%
  - Bin 10: 79%
  - Bin 11: 92%
  - Bin 12: 96%
  - Bin 13: 100%

**Percent Distances:**

- **UCD Only:**
  - Bin 1: 11%
  - Bin 2: 6%
  - Bin 3: 4%
  - Bin 4: 3%
  - Bin 5: 3%
  - Bin 6: 3%
  - Bin 7: 3%
  - Bin 8: 3%
  - Bin 9: 3%
  - Bin 10: 3%
  - Bin 11: 3%
  - Bin 12: 3%
  - Bin 13: 3%

**Percent Distances:**

- **UCD Only + UCLA Mapped:**
  - Bin 1: 77%
  - Bin 2: 59%
  - Bin 3: 44%
  - Bin 4: 37%
  - Bin 5: 30%
  - Bin 6: 24%
  - Bin 7: 18%
  - Bin 8: 13%
  - Bin 9: 9%
  - Bin 10: 7%
  - Bin 11: 4%
  - Bin 12: 3%
  - Bin 13: 2%

**Percent Distances:**

- **Score Dist after Mapping:**
  - Bin 1: 16%
  - Bin 2: 19%
  - Bin 3: 21%
  - Bin 4: 24%
  - Bin 5: 27%
  - Bin 6: 30%
  - Bin 7: 33%
  - Bin 8: 36%
  - Bin 9: 39%
  - Bin 10: 42%
  - Bin 11: 45%
  - Bin 12: 48%
  - Bin 13: 51%

**Percent Distances:**

- **Cum Dist after Mapping:**
  - Bin 1: 16%
  - Bin 2: 19%
  - Bin 3: 21%
  - Bin 4: 24%
  - Bin 5: 27%
  - Bin 6: 30%
  - Bin 7: 33%
  - Bin 8: 36%
  - Bin 9: 39%
  - Bin 10: 42%
  - Bin 11: 45%
  - Bin 12: 48%
  - Bin 13: 51%
### TABLE 2A: All Applicants with both UCLA & UCB HR Scores (18,902)

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Calibration-Map Diagram 1

Calibration Mapping of UCLA HR scores onto UCD CR2-score bins

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</tbody>
</table>
Calibration-Map Diagram 2

Calibration Mapping of UCB HR scores onto UCLA-score bins

<table>
<thead>
<tr>
<th>UCLA HR SCORES</th>
<th>UCB HR SCORES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1.5</td>
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</table>
Calibration-Map Diagram 3

Calibration Mapping of UCLA HR scores onto UCB-score bins

<table>
<thead>
<tr>
<th>UCB HR SCORES</th>
<th>UCLA HR SCORES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3.5</td>
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<td>4.75</td>
<td>4.75</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
A "Bin-Filling" approach to HR-Score Mapping  
by Ralph Aldredge  
(approved by the Admissions & Enrollment Committee, 5/10/11)

1. UCD HR of applications that don’t have available UCX HR scores, resulting in a distribution of these applications over 13 bins, each characterized by a size (number of applications in the bin) and discrete percentile (number of all other applicants reviewed thus far with scores below that of those in the bin); understanding that the bin sizes and percentiles will change somewhat from those identified initially (before averaging) to guide the readers—e.g., top 25%, middle 40% divided into 5 bins and bottom 35%.

2. Calibration of UCX HR scores with UCD HR Scores by performing local UCD HR of a sample of applications (e.g., 1000) with UCX HR scores that are likely to be in a tie-breaking range; for example, UCLA HR scores of 2.75, 3 & 3.5.

3. Using the results of the calibration to distribute applications with sufficiently high UCX HR scores over the bins created in step one, resulting in changes in the respective bin sizes and associated percentiles.

4. Evaluation of the remaining applications, those with sufficiently low UCX HR scores (e.g., UCLA HR scores of 4 and 4.25) with the abbreviated local UCD HR process (one read) and then distributing these applications over the bins defined by step 3, resulting in further changes in the respective bin sizes and associated percentiles.

The final result of this process is the distribution of all applicants over 13 bins, each characterized by a size (number of applications in the bin) and associated percentile (number of all other applicants reviewed with scores below that of those in the bin). Each applicant would then have a unique percentile, representing the number of all other applicants to UCD (irrespective of wherever else they might have applied) that have lower scores. This percentile, the UCD Common Percentile Score, could be useful to other campuses.
**Freshman Application Scoring Guidelines for Readers**

Approved by the Admissions & Enrollment Committee, 7/5/11

<table>
<thead>
<tr>
<th>UCD Bin</th>
<th>Percentile</th>
<th>Cumm. Percentile</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85-99 (top 15%)</td>
<td>85-99 (top 15%)</td>
<td>likely admits</td>
</tr>
<tr>
<td>2</td>
<td>75-85 (next 10%)</td>
<td>75-99 (top 25%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>65-75 (next 10%)</td>
<td>65-99 (top 35%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>55-65 (next 10%)</td>
<td>55-99 (top 45%)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>45-55 (next 10%)</td>
<td>45-99 (top 55%)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>35-45 (next 10%)</td>
<td>35-99 (top 65%)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>0-35 (bottom 35%)</td>
<td>0-99 (top 99%)</td>
<td>likely denied</td>
</tr>
</tbody>
</table>
Governing UCD HR Principles:
1. All applicants, regardless of where their HR scores come from, will be ranked on a single scale, which will be used to make final admit/deny decisions.
2. The scale used will be that generated through the UCD HR process.
3. The relative rankings of the UCD applicants (generated by the UCD HR process) will be invariant: the addition of UCLA scores to the UCD scale will not change the relative rankings of UCD applicants with respect to other UCD applicants.
4. Each applicant with a UCLA score will be assigned to one specific UCD score level.
5. A number of applications with UCLA scores will undergo a full UCD read and these applications will be used for calibrating the UCLA and UCD score scales.
6. UCLA applicants will be assigned to a UCD score level that is in agreement with the calibration.
7. Where calibration leaves the exact UCD score equivalent for a UCLA score indeterminate (one of several possible UCD scores would be possible), a “bin-filling” algorithmic method (similar to the tie break procedure used for final admit/deny decisions, but not necessarily identical) will be used to assign the UCLA scores to a specific UCD level.
8. Admit/deny cutoffs for all majors will be assigned on this shared score scale (at major-specific scores).
9. The score level within which the admit/deny cutoff falls will be subject to a final (algorithmic) tie break.

Notice that all human evaluation has taken place before these steps, in generating the HR scores. There is no further human evaluation once the HR scores are given.

Components to be discussed:
A. Calibration of the UCLA and UCD scales to determine the range of appropriate UCD “bins” for bin filling.
B. Choosing a specific UCD bin from among those consistent with the calibration (“bin filling”)

**Calibration Overview**

We start with UCD-generated HR scores:

The bin sizes are meant to approximate the proportion of applicants with each given score, but are not exactly to scale.

HR scores from UCLA will also come in a 13-level scale. Applications in the shaded bins will preferably be read at UCD and their UCD scores used. However, calibration and bin filling will include these bins, in case there are some applications with these scores that are not read at UCD for logistical reasons. The bin sizes in this picture are probably not very accurate; they are nonetheless drawn at different sizes to attract attention to the fact that, while UCLA and UCD use the same number of overall score levels, the distributions of the specific scores are very different by design.
A calibration algorithm proposed by O. Orgun and presented at the A&E meeting on 5/10/11 is described in detail below. This algorithm is designed to achieve a self-consistent mapping of UCLA HR scores to UCD HR scores when both scores are known. In other words, this algorithm determines the range of contiguous UCD HR scores appropriate for possible assignment of an applicant with a given UCLA HR score while preserving that applicant’s rank upon translation relative to other applicants whose UCLA HR scores are also translated. The diagram below provides an example of the results of calibration and bin-filling, showing the assignment of several (imaginary) UCLA applicants to UCD score levels.

Of note:

a) UCLA applicants with the same UCLA score may be assigned to any one of a number of contiguous UCD bins.

b) A given UCD bin may have UCLA applicants coming into it from any one of a number of adjacent UCLA bins.

c) For two UCLA applicants A, B, if A is in a higher UCLA bin than B, then A cannot be in a
lower UCD bin than B (self-consistent mapping)

d) The range of UCD bins to which an applicant with a given UCLA score can be potentially
assigned is determined by the score calibration procedure described below.

e) Likewise, the range of UCLA bins from which applicants assigned to a given UCD bin are
obtained will depend on the calibration procedure described below.

Calibration Algorithm

We start with about 1,000 applications to be scored both at UCLA and at UCD. Each set of scores
(UCLA scores; UCD scores) will put this set of applications in a partially ordered set (poset). The
ordering relation has some useful properties (these probably appear trivial to us, but the literature on
posets seems to imply that these properties are important in developing a way to merge two posets). In
particular, for any pair A, B,  A > B implies B < A. Furthermore, for a triplet A, B, C, A > B and B > C
together imply A > C.

In developing a calibrated scale against which other applicants (with only UCLA or only UCD scores)
can be compared, it seems that a good step is to merge the partial orderings of the test set given by the
UCLA and UCD scores. The result will still be a poset containing all the same applications, but one
with more ordering relations specified (fewer applicants left mutually unranked) than in the UCLA or
UCD posets.

Ideal case: the UCLA and UCD HR scores for the 1,000 test cases are such that there are no
inconsistencies in the relative ranking of the applicants. That is, for an arbitrary pair of applicants, A
and B:

UCLA-score(A) > UCLA-score(B) implies UCD-score(A) ≥ UCD-score(B)

and

UCD-score(A) > UCD-score(B) implies UCLA-score(A) ≥ UCLA-score(B)

One easy way to come up with a combined poset seems to be this: Consider the top score stratum in
each poset (UCD scores; UCLA scores). Whichever set is smaller becomes the top layer of the
combined scale. Now, remove the applicants assigned to this layer. Then look at the top layers of the
remainders of the two posets and repeat the process until all applicants are accounted for. This will give
a combined ordering of the 1,000 test cases. There will be at most 25 layers in this combined scale
(since there are 13 layers in each of the source scales). Here's a simplified demonstration of this
procedure applied to input scales of 7 layers each (instead of 13 each). Each letter of the alphabet
represents an individual applicant.

<table>
<thead>
<tr>
<th>UCLA score</th>
<th>Applicants</th>
<th>UCD score</th>
<th>Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>1</td>
<td>A, B, C, D, E</td>
</tr>
<tr>
<td>2</td>
<td>B, C</td>
<td>2</td>
<td>F, G</td>
</tr>
<tr>
<td>2.5</td>
<td>D, E</td>
<td>3</td>
<td>H, I</td>
</tr>
<tr>
<td>3</td>
<td>F, G, H</td>
<td>4</td>
<td>J, K</td>
</tr>
<tr>
<td>4</td>
<td>I, J, K, L</td>
<td>5</td>
<td>L, M</td>
</tr>
<tr>
<td>4.5</td>
<td>M, N, O, P</td>
<td>6</td>
<td>N, O</td>
</tr>
<tr>
<td>5</td>
<td>Q, R, S, T</td>
<td>7</td>
<td>P, Q, R, S, T</td>
</tr>
</tbody>
</table>
In combining these scales, we first identify the scale that has the smallest top layer. This is the UCLA scale, where only candidate A has a score of 1. The top layer of that scale (in this case, the singleton set of candidate A) becomes the top layer of the combined scale:

<table>
<thead>
<tr>
<th>Combine scores (UCLA/UCD)</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>A</td>
</tr>
</tbody>
</table>

We also remove applicants in this layer (in this case, candidate A) from the UCLA and UCD (source) scores:

<table>
<thead>
<tr>
<th>UCLA score</th>
<th>Applicants</th>
<th>UCD score</th>
<th>Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>1</td>
<td>B, C, D, E</td>
</tr>
<tr>
<td>2</td>
<td>B, C</td>
<td>2</td>
<td>F, G</td>
</tr>
<tr>
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<td>D, E</td>
<td>3</td>
<td>H, I</td>
</tr>
<tr>
<td>3</td>
<td>F, G, H</td>
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<td>J, K</td>
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<td>I, J, K, L</td>
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<td>L, M</td>
</tr>
<tr>
<td>4.5</td>
<td>M, N, O, P</td>
<td>6</td>
<td>N, O</td>
</tr>
<tr>
<td>5</td>
<td>Q, R, S, T</td>
<td>7</td>
<td>P, Q, R, S, T</td>
</tr>
</tbody>
</table>

Now we repeat the layering process: the smallest top layer is UCLA score 2, with candidates B, C. We add those to the combined scale and remove them from the original scales. After several more iterations, we reach this state:

<table>
<thead>
<tr>
<th>Combined scale</th>
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</thead>
<tbody>
<tr>
<td>Combined scores (UCLA/UCD)</td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>1/1</td>
</tr>
<tr>
<td>2/1</td>
</tr>
<tr>
<td>2.5/1</td>
</tr>
</tbody>
</table>

Original scales (portion not yet combined):

<table>
<thead>
<tr>
<th>UCLA score</th>
<th>Applicants</th>
<th>UCD score</th>
<th>Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>F, G</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>H, I</td>
</tr>
<tr>
<td>3</td>
<td>F, G, H</td>
<td>4</td>
<td>J, K</td>
</tr>
<tr>
<td>4</td>
<td>I, J, K, L</td>
<td>5</td>
<td>L, M</td>
</tr>
<tr>
<td>4.5</td>
<td>M, N, O, P</td>
<td>6</td>
<td>N, O</td>
</tr>
<tr>
<td>5</td>
<td>Q, R, S, T</td>
<td>7</td>
<td>P, Q, R, S, T</td>
</tr>
</tbody>
</table>
Now the smallest top layer is UCD score 2, with applicants F, G. The next step gives us:

<table>
<thead>
<tr>
<th>Combined scores (UCLA/UCD)</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>A</td>
</tr>
<tr>
<td>2/1</td>
<td>B, C</td>
</tr>
<tr>
<td>2.5/1</td>
<td>D, E</td>
</tr>
<tr>
<td>3/2</td>
<td>F, G</td>
</tr>
</tbody>
</table>

Repeating this for the rest of the scales, we get:

<table>
<thead>
<tr>
<th>Combined scores (UCLA/UCD)</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>A</td>
</tr>
<tr>
<td>2/1</td>
<td>B, C</td>
</tr>
<tr>
<td>2.5/1</td>
<td>D, E</td>
</tr>
<tr>
<td>3/2</td>
<td>F, G</td>
</tr>
<tr>
<td>3/3</td>
<td>H</td>
</tr>
<tr>
<td>4/3</td>
<td>I</td>
</tr>
<tr>
<td>4/4</td>
<td>J, K</td>
</tr>
<tr>
<td>4/5</td>
<td>L</td>
</tr>
<tr>
<td>4.5/5</td>
<td>M</td>
</tr>
<tr>
<td>4.5/6</td>
<td>N, O</td>
</tr>
<tr>
<td>4.5/7</td>
<td>P</td>
</tr>
<tr>
<td>5/7</td>
<td>Q, R, S, T</td>
</tr>
</tbody>
</table>

Now we consider a more realistic case, in which the UCLA and UCD stratifications are not fully consistent with one another. That is, there are some candidates A1 and A2 such that UCLA-score(A1) > UCLA-score(A2) but UCD-score(A2) > UCD-score(A1). The calibration process will eliminate candidates with mismatched scores from the calibration and develop a combined scale containing only scores that are consistent across the two campuses. The number of scores retained in the calibration is a measure of the degree of consistency between the scores from the two campuses.

An example follows, in which there is only one candidate whose score is mismatched between UCLA and UCD:

<table>
<thead>
<tr>
<th>UCLA score</th>
<th>Applicants</th>
<th>UCD score</th>
<th>Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>1</td>
<td>A, C, D, E</td>
</tr>
<tr>
<td>2</td>
<td>B, C</td>
<td>2</td>
<td>B, F, G</td>
</tr>
<tr>
<td>2.5</td>
<td>D, E</td>
<td>3</td>
<td>H, I</td>
</tr>
<tr>
<td>3</td>
<td>F, G, H</td>
<td>4</td>
<td>J, K</td>
</tr>
<tr>
<td>4</td>
<td>I, J, K, L</td>
<td>5</td>
<td>L, M</td>
</tr>
<tr>
<td>4.5</td>
<td>M, N, O, P</td>
<td>6</td>
<td>N, O</td>
</tr>
<tr>
<td>5</td>
<td>Q, R, S, T</td>
<td>7</td>
<td>P, Q, R, S, T</td>
</tr>
</tbody>
</table>
One way to proceed would be to modify the top layer selection process above slightly: for the top layer system to work, one of the top layers needs to be a subset of the other (such that we make the subset the next layer of the combined scale). Score mismatches will give rise to intersecting top layers. The task is to drop the smallest number of elements from one of the top layers to regain a subset relationship. To do this, we simply compare the number of elements in each top layer that is not in the top layer of the other scale. Whichever one is smaller gets dropped. In the present example, this happens in the second step (after we have assigned A to the top layer with no mishaps). Now the new top layers are:

UCLA: B, C
UCD: C, D, E

Neither is a subset of the other.
The difference sets are:
In UCLA but not in UCD: B
In UCD but not in UCLA: D, E

Since \{B\} is the smaller set, it gets dropped from the combined ranking, which eventually results in the following calibration:

<table>
<thead>
<tr>
<th>Combined scores (UCLA/UCD)</th>
<th>Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>A</td>
</tr>
<tr>
<td>2/1</td>
<td>C</td>
</tr>
<tr>
<td>2.5/1</td>
<td>D, E</td>
</tr>
<tr>
<td>3/2</td>
<td>F, G</td>
</tr>
<tr>
<td>3/3</td>
<td>H</td>
</tr>
<tr>
<td>4/3</td>
<td>I</td>
</tr>
<tr>
<td>4/4</td>
<td>J, K</td>
</tr>
<tr>
<td>4/5</td>
<td>L</td>
</tr>
<tr>
<td>4.5/5</td>
<td>M</td>
</tr>
<tr>
<td>4.5/6</td>
<td>N, O</td>
</tr>
<tr>
<td>4.5/7</td>
<td>P</td>
</tr>
<tr>
<td>5/7</td>
<td>Q, R, S, T</td>
</tr>
</tbody>
</table>

The candidate with the mismatched scores did not end up contributing to the calibration of the score scales. I believe this is as it should be; calibration this way is based on scores that are consistent across the two campuses.

Applicants who were dropped from the score calibration for mismatched scores will still need to be assigned final scores for their admission decisions. There are several ways one could do this (a) to ignore their UCLA scores altogether since they have undergone two UCD reads. The other possibility (because they have mismatched scores, which might indicate some difficulty in determining their proper score) is (b) for them to undergo a third UCD read; if their UCD score was already the result of a third read, then that score presumably stands. A&E has decided to adopt approach (a).
The results of the fictitious calibration example described above are summarized below in both tabular and graphical forms.

<table>
<thead>
<tr>
<th>Combined scores (UCLA/UCD)</th>
<th>UCD scores</th>
<th>UCLA scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2/1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2.5/1</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>3/2</td>
<td>3</td>
<td>3</td>
</tr>
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<td>3/3</td>
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<td>3</td>
</tr>
<tr>
<td>4/3</td>
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</tr>
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</tr>
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<td>4.5/5</td>
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<td>4.5</td>
</tr>
<tr>
<td>4.5/6</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>4.5/7</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>5/7</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

The next step is the bin-filling process, which determines for example the following:

a) Which applicants with UCLA scores of 3 will be placed in UCD bin 2 and which ones in UCD bin 3?

b) Which UCLA applicants with UCLA scores of 4.5 will be placed in UCD bin 5, which ones in UCD bin 6, and which ones in UCD bin 7?

Note that once an applicant with a UCLA score (whose application is not read locally) is placed in a UCD bin, their UCLA score is no longer used for any purpose. Therefore, when final admission decisions are made, applicants in UCD bin 1 will no longer be distinguished from one another based on whether their UCLA HR scores were 1, 2, or 2.5. If a given major's cutoff line falls inside UCD bin 1, all these three groups of UCLA applicants will participate in tie break, along with all UCD applicants who were given UCD HR scores of 1.

**Bin-filling Algorithm**

An algorithm for bin-filling, when (according to calibration) two or more UCD bins correspond to a given UCLA bin, is described below.

Suppose that a given UCLA bin corresponds to a certain range of UCD bins. Assume that a specific individual UCLA candidate is assigned to one of these UCD bins. We can define a measure of the incompatibility of this bin assignment as follows:

Within each UCD bin (separately), rank the existing applicants according to some ranking method (e.g., CR1 scores). Also determine the relative ranking of the individual UCLA applicant with respect to the existing applicants in each bin. Now, for each UCD bin better than the actual bin that the UCLA applicant is assigned to, it is undesirable for existing candidates within this bin to be ranked lower than the UCLA applicant. Likewise, for UCD bins worse than the one that the candidate is assigned to, it is undesirable for existing candidates to be ranked higher than the UCLA applicant.
For each potential UCD bin for our given applicant, we can add up these incompatibility measures. Then, the applicant is placed in the UCD bin that yields the smallest total incompatibility.

Here is an example:

Suppose UCLA bin X may (according to calibration) correspond to UCD bins A, B, C, D (with A the best and D the worst).

Suppose candidate Q is in UCLA bin X and the bin-filling algorithm is to be used to assign them to UCD bin A, B, C, or D.

Define the following values:
- \( A_{\text{better}} \): number of candidates in UCD bin A that are ranked higher (according to CR1 scores) than candidate Q.
- \( A_{\text{worse}} \), \( B_{\text{better}} \), \( B_{\text{worse}} \), \( C_{\text{better}} \), \( C_{\text{worse}} \), \( D_{\text{better}} \), \( D_{\text{worse}} \)

Now, if we were to put Q in UCD bin A, the total incompatibility would be:
- \( B_{\text{better}} + C_{\text{better}} + D_{\text{better}} \)

For bin B:
- \( A_{\text{worse}} + C_{\text{better}} + D_{\text{better}} \)

For bin C:
- \( A_{\text{worse}} + B_{\text{worse}} + D_{\text{better}} \)

For bin D:
- \( A_{\text{worse}} + B_{\text{worse}} + C_{\text{worse}} \)

Whichever bin assignment yields the smallest total incompatibility value is chosen.
This is a code for calibration written by Orgun Orhan in Python

UCLA_scores = [5, 4.75, 4.5, 4.25, 4, 3.5, 3, 2.75, 2.5, 2.25, 2, 1.5, 1]

UCD_scores = [7, 6, 5, 4, 3, 2, 1]

# Rows: UCLA HR scores
# Column: UCD CD scores translated into 7-point scale
# Each cell is number of apps with UCLA/UCD score combination
# These are listed from best to worst
score_corrs = [
    [361, 59, 27, 5, 1, 2, 2],
    [500, 95, 30, 12, 2, 2, 17],
    [807, 231, 134, 55, 25, 4, 32],
    [682, 336, 194, 103, 41, 18, 45],
    [692, 490, 417, 264, 131, 67, 74],
    [410, 384, 384, 290, 205, 118, 105],
    [301, 432, 494, 506, 427, 278, 296],
    [140, 309, 398, 465, 471, 421, 540],
    [84, 247, 414, 598, 780, 851, 1763],
    [13, 70, 125, 200, 342, 496, 1694],
    [5, 25, 57, 86, 202, 341, 2668],
    [1, 4, 5, 10, 17, 67, 1019],
    [1, 0, 2, 3, 8, 22, 1058]
]

def construct_column(UCLA_position, UCD_position):
    column = []
    for i in range(UCLA_position, len(score_corrs)):
        column.append(score_corrs[i][UCD_position])
    return column

# Initialize

# Scores
current_UCLA_score = UCLA_scores.pop()
current_UCD_score = UCD_scores.pop()

# Calibration results
calib = []

# Position in score correspondence table
current_UCLA_position = 0
current_UCD_position = 0

print("UCLA --> UCD")

while(UCLA_scores and UCD_scores):
    #Candidates with current UCLA/UCD score combination
    shared = score_corrs[current_UCLA_position][current_UCD_position]
    if shared: #This should in fact always be non-zero
        print(current_UCLA_score, " --> ", current_UCD_score)
        calib.append([current_UCLA_score, current_UCD_score])

    UCLA_array = score_corrs[current_UCLA_position][current_UCD_position:] #rows can be referenced directly
    UCD_array = construct_column(current_UCLA_position, current_UCD_position) #column needs to be constructed

    #print("\nUCLA array: ", UCLA_array)
    #print("UCD array: ", UCD_array)
    #print("Shared: ", shared, "\n")

    #Difference sets
    UCLA_not_in_UCD = sum(UCLA_array) - shared
    UCD_not_in_UCLA = sum(UCD_array) - shared
    #print("UCLA not in UCD: ", UCLA_not_in_UCD)
    #print("UCD not in UCLA: ", UCD_not_in_UCLA)

    if UCLA_not_in_UCD > UCD_not_in_UCLA:
        #discard the smaller; keep the larger
        current_UCD_score = UCD_scores.pop()
        current_UCD_position += 1
        UCLA_array.pop(0)
    else: #not dealing with equal numbers
        current_UCLA_score = UCLA_scores.pop()
        current_UCLA_position += 1
        UCD_array.pop(0)
#Peeling done; figure out which side still has material left
#Everything left on that side can correspond to the lowest score on the other side

if UCLA_scores:
    print(current_UCLA_score, " --> ", current_UCD_score)
    calib.append([current_UCLA_score, current_UCD_score])
    for i in range(len(UCLA_scores)):
        print(UCLA_scores[-i-1], " -->", current_UCD_score)
        calib.append([UCLA_scores[-i-1], current_UCD_score])

if UCD_scores:
    print(current_UCLA_score, " --> ", current_UCD_score)
    for i in range(len(UCD_scores)):
        print(current_UCLA_score, " -->", UCD_scores[-i-1])
        calib.append([current_UCLA_score, UCD_scores[-i-1]])
This is a code for bin-filling written by Orgun Orhan in Python

#File format: 3 columns
#UCLA HR score; UCD CR2 score; UCD CR1 score
shared_apps_file = open('HR.CR2.CR1.csv')

#File format: 2 columns
#UCD CR2 score; UCD CR1 score
UCD_apps_file = open('CR2.CR1.csv')

#Read in UCLA/UCD shared applicant scores
print('Reading in shared applicant scores...')
shared_apps = []
for app in shared_apps_file:
    scores = app.strip().split(';')
    #print(scores)
    HR = float(scores[0]) #UCLA HR score
    CR2 = int(scores[1])  #UCD CR1 score
    CR1 = int(scores[2])  #UCD CR2 score; stands in for UCD HR score in calibration
    shared_apps.append({'HR':HR, 'CR1':CR1, 'CR2':CR2}) #Each app is a dictionary with scores as values
shared_apps_file.close()
print('done')

#Read in UCD-only applicant scores
print('Reading in UCD-only applicant scores...')
UCD_apps = []
for app in UCD_apps_file:
    scores = app.strip().split(';')
    #print(scores)
    CR2 = int(scores[0]) #CR2 score; stands in for HR score (done below in filling in bin populations)
    CR1 = int(scores[1]) #CR2 scores; will be used for ranking during bin filling
    UCD_apps.append({'CR1':CR1, 'CR2':CR2})
UCD_apps_file.close()
print('done')

#Sort applicants according to CR2 score so that they can be assigned to HR1 bins
UCD_apps = sorted(UCD_apps, key = lambda UCD_apps: UCD_apps['CR2'])
#Arbitrary; in real life will be whatever it turns out to be
#when human readers
#have scored all applications
UCD_bin_percents = [10, 7.5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 17.5, 20]

#Assign students to UCD "HR" bins according to CR1 scores, in
the proportions given above
print('Assigning UCD-only students to "HR" bins...',)
n_UCD_apps = len(UCD_apps)
UCD_bin_percents.pop() #throw away last bin. size will be
whatever's left over

UCD_bin_sizes = [] #Actual number of scores in each bin (above
percents times total num apps)
for UCD_bin in UCD_bin_percents:
    UCD_bin_sizes.append(int(UCD_bin * n_UCD_apps / 100))
UCD_bin_sizes.append(n_UCD_apps - sum(UCD_bin_sizes)) #This
eliminates any rounding mishaps

#Populate UCD bins with actual applicants
#Each applicant is represented by their CR1 score
UCD_bin_populations = {}
for i in range(len(UCD_bin_sizes)):
    binpop = UCD_bin_sizes[i]
    bin_apps = []
    for j in range(binpop):
        app = UCD_apps.pop() #Pop from end, starting with
        highest score
        bin_apps.append(app['CR1'])
    UCD_bin_populations[i+1] = sorted(bin_apps) #Ranked to
facilitate bin filling
print('done')

#Example calibration taken from Ralph's simulations
#In real life, to be calculated from actual scores
#UCD bin scores are given as whole numbers; this makes it
simpler to access them
calibration = { #Keys are UCLA HR scores; values are lists of
potential UCD bins
def binfill(target_bins, CR1, bin_populations):
    positions = []  # number of applicants above and below current
    applicant in bin, according to CR1 score ranking

    # Only one possible bin, no need to tie break
    if len(target_bins) == 1:
        # print("Assigned to sole bin", target_bins[0])
        return target_bins[0]

    # More than one bin possible, need to tie break
    print("Tie breaking applicant with CR score of", CR1, "among
    UCD bins", target_bins)
    for possible_bin in target_bins:
        # print("Checking bin", possible_bin)
        target_bin_population = bin_populations[possible_bin]
        # UCD students already in bin, represented by their CR1 scores
        num_below = 0
        num_above = 0
        # Tally UCD scores above and below current UCLA applicant
        under consideration
        for existing_applicant_CR1 in target_bin_population:
            # print("Existing applicant CR1",
            existing_applicant_CR1, "vs current applicant CR1", CR1)
            if CR1 < existing_applicant_CR1:
                num_above += 1
            if CR1 > existing_applicant_CR1:
                num_below += 1
        #positions.append([num_below, num_above])  # CR1 ranking in
each calibration bin
print("In bin", possible_bin, num_below, "below and", num_above, "above current applicant")

# Badness scores as defined in Orhan's email message
badness_scores = []
for i in range(len(target_bins)):
    bin_badness = 0
    for j in range(i):
        bin_badness += positions[j][0] # applicants below current one in better bins
    for j in range(i+1, len(target_bins)):
        bin_badness += positions[j][1] # applicants above current one in worse bins
    badness_scores.append(bin_badness)

print("Badness for bin", target_bins[i], "is", bin_badness)

# Choose bin with the smallest badness total
min_badness = badness_scores[0]
best_bin = 0
for i in range(1, len(badness_scores)):
    if badness_scores[i] < min_badness:
        min_badness = badness_scores[i]
        best_bin = i

print("Assigning to bin", target_bins[best_bin])
return target_bins[best_bin]


print('Performing bin filling (long process)...',)
# Tie break all shared applicants

tie_break_results = []
for applicant in shared_apps:
    HR_score = applicant['HR']
    CR1_score = applicant['CR1']
    # CR2 is not used here (it is only used for calibration)
    # In real life, for shared applicants with UCD HR scores, these scores
    # would be used both for calibration and admission. Therefore, shared
    # applicants with scores should be taken out of the UCLA pool before bin filling
    potential_UCD_bins = calibration[HR_score]
    actual_UCD_bin = binfill(potential_UCD_bins, CR1_score, UCD_bin_populations)
student = {'HR':HR_score, 'CR1':CR1_score, 
'Bin':(actual_UCD_bin+1)/2} #UCD bin number converted to UCD HR score
binfill_results.append(student)
print('done')

#write results to file
print('Writing results to file...',)
rawbad = open('rawbad.csv', 'w')
rawbad.write('UCLA HR score, UCD CR1 score, UCD bin\n')
for student in binfill_results:
    HR = str(student['HR'])
    CR1 = str(student['CR1'])
    Bin = str(student['Bin'])
    rawbad.write(HR+','+CR1+','+Bin+'\n')
rawbad.close()
print("OLE!")
% Calibration Routine

clear all
close all

dirname='./Input Data/';
%filename=[dirname 'hr_input_1000_2.txt'];
%filename=[dirname 'hr_input_1000_1.txt'];
%filename=[dirname 'hr_input_2000.txt'];
%filename=[dirname 'hr_input_26610.txt'];
%filename=[dirname 'hr13x13_CR2_input_26609.txt'];
%filename=[dirname 'hr13x13_CR1_input_26609.txt'];
%filename=[dirname 'UCLA(26609) to UCLA_CR2 via CR1_tb.txt'];
%filename=[dirname 'UCLA(26609) to UCD_CR2 via CR1_tb.txt'];
%filename=[dirname 'UCLA(26609) to UCLA_CR2 via CR2_tb.txt'];
%filename=[dirname 'UCLA(26609) to UCD_CR2 via CR2_tb.txt'];
%filename=[dirname 'UCLA(26609) to UCD_CR1 via CR1_tb.txt'];
%filename=[dirname 'UCLA(26609) to UCLA_CR1 via CR2_tb.txt'];
%filename=[dirname 'UCLA vs UCB HR Scores (18902).txt'];
%filename=[dirname 'UCB vs UCLA HR Scores (18902).txt'];
filename=[dirname 'UCLA(7707) to UCLA&UCB(18902) via CR1.txt'];
%filename=[dirname 'UCB(6249) to UCLAonly(7707) via CR1.txt'];
%filename=[dirname 'UCLA(7707) to UCLA&UCB(18902) via CR1.txt'];
%filename=[dirname 'UCLA(7707) to UCBonly(6249) via CR1.txt'];
data=dlmread(filename);

[num_stud,dum]=size(data);
n=num_stud;
sid=data(:,1);
%hr_ucla=[1,1.5,2,2.25,2.5,2.75,3,3.5,4,4.25,4.5,4.75,5];
%hr_ucd=[1,1.5,2,2.25,2.5,2.75,3,3.5,4,4.25,4.5,4.75,5];
%hr_ucd=[1,1.5,2,2.5,3,3.5,4,4.5,5,5.5,6,6.5,7]; %for UCD data
%hr_ucd=[1,1.5,2,2.25,2.5,2.75,3,3.5,4,5]; %for UCB data
%hr_ucla=[1,1.5,2,2.25,2.5,2.75,3,3.5,4,5]; %for UCB data
%hr_ucla=[1,1.5,2,2.25,2.5,2.75,3,3.5,4];
%hr_ucla=[1,1.5,2,2.5,3,3.5,4,4.5,5,5.5,6,6.5,7];
%hr_ucd=[1,1.5,2,3,4,5,6,7];
%dum,max_ucla]=size(hr_ucla);
%dum,max_ucd]=size(hr_ucd);
top_ucla=1;
top_ucd=1;
for i=1:n
    sid_tag(i)=0;
end
for k=1:max_ucd
    for j=1:max_ucla
        cnt_all(j,k)=0;
        cnt_good(j,k)=0;
    end
end

%[X,Y]=meshgrid(hr_ucla,hr_ucd);
while (top_ucla<=max_ucla)&(top_ucd<=max_ucd)
    for j=1:max_ucla
        cnt_ucla(j)=0;
    end
    for k=1:max_ucd
        cnt_ucd(k)=0;
    end
    cnt_match=0;
    for i=1:n
        if (data(i,2)==hr_ucla(top_ucla))&(sid_tag(i)==0)
            cnt_ucla(top_ucla)=cnt_ucla(top_ucla)+1;
            if (data(i,3)==hr_ucd(top_ucd))&(sid_tag(i)==0)
                cnt_ucd(top_ucd)=cnt_ucd(top_ucd)+1;
                if (data(i,2)==hr_ucla(top_ucla))&(data(i,3)==hr_ucd(top_ucd))&(sid_tag(i)==0)
                    cnt_match=cnt_match+1;
                    sid_tag(i)=1;
                    if (cnt_ucla(top_ucla)==cnt_match)
                        flag_ucla=1;
                    elseif (cnt_ucla(top_ucla)-cnt_match)<(cnt_ucd(top_ucd)-cnt_match)
                        for i=1:n
                            if (data(i,2)==hr_ucla(top_ucla))&(sid_tag(i)==0)
                                sid_tag(i)=2;
                            end
                        end
                        flag_ucla=1;
                    end
                    if (cnt_ucd(top_ucd)==cnt_match)
                        flag_ucd=1;
                        for i=1:n
                            if (data(i,2)==hr_ucla(top_ucla))&(sid_tag(i)==0)
                                sid_tag(i)=2;
                            end
                        end
                        flag_ucd=1;
                end
            end
        end
    end
end
elseif (cnt_ucd(top_ucd)-cnt_match)<(cnt_ucla(top_ucla)-
cnt_match)
    for i=1:n
        if (data(i,3)==hr_ucd(top_ucd))&(sid_tag(i)==0)
            sid_tag(i)=2;
        end
    end
    flag_ucd=1;
end
if flag_ucla==1
    top_ucla=top_ucla+1;
end
if flag_ucd==1
    top_ucd=top_ucd+1;
end

%top_ucd, top_ucla, max_ucla, max_ucd
end

for i=1:n
    for j=1:max_ucla
        k=find(hr_ucd==data(i,3));
        if data(i,2)==hr_ucla(j)
            cnt_all(j,k)=cnt_all(j,k)+1;
            if sid_tag(i)==1
                cnt_good(j,k)=cnt_good(j,k)+1;
            end
        end
    end
end
cnt_all
cnt_good
dum=sum(cnt_all,1);
cntall_tot=sum(dum)
dum=sum(cnt_good,1);
cntgood_tot=sum(dum)
rate_good=100*cntgood_tot/cntall_tot
Determining the Range of Predicted UCLA HR Scores that should Trigger local Evaluation

Prepared by Ralph Aldredge, 12/3/11
For internal review by members of the UC Davis Academic Senate Committee on Admissions & Enrollment and its consultants

**Background**

Consistent with UCD HR policy, all applications with actual UCLA HR scores of either 4 or 4.25 will be read this year, regardless of when the actual UCLA HR score becomes known. Accurate prediction of UCLA HR scores is therefore necessary to ensure that the number of applications with UCLA HR scores that are read locally is not substantially greater than the number of applications with actual UCLA HR scores of 4 or 4.25, so that reader workload can be minimized. Accurate prediction of UCLA HR scores will also minimize the fraction of applications with mis-predicted UCLA HR scores that need to be read near or after the end of the regularly scheduled reading time frame, as the actual UCLA HR scores become available.

Tongshan Chang and Erika Jackson at UCOP provided UA with separate formulas for predicting the UCLA HR scores of applicants in each of three separate applicant groups, (i) CA residents, (ii) domestic residents and (iii) international applicants. Each formula consists of a single polynomial expression: the sum of the quantitative measures of a wide range of applicant characteristics considered in the UCLA HR process, each multiplied (weighted) by an appropriate coefficient. The appropriate set of regression coefficients was determined for each applicant group from multi-variable regression analysis of the HR scores of all applicants to UCLA last year in the respective applicant group. Also provided by UCOP were correlation tables for each of the applicant groups showing the number of applicants receiving each possible combination of predicted value (PV) and actual HR score. Using the UCOP data, Miguel Robinson and Donalynn Owfook created a table showing the correlation between the PV and actual HR scores of last-year’s CA-resident applicants to UC Davis who also applied to UCLA (a subset of the group of all CA-resident applicants to UCLA).

**The range of PV scores that will trigger a local HR read**

The correlation between the PV and actual HR scores of last-year’s CA-resident applicants to UC Davis who also applied to UCLA prepared by Miguel and Donalynn was analyzed by R. Aldredge. The goal was to determine the optimal range of PV scores that should trigger a local read of applications for which we expect to receive a UCLA HR score (likely unknown when the application is received). The results of the analysis are presented in the attached charts, as Options A, B & C. Option A involves locally reading all applications to UC Davis from applicants who also applied to UCLA and have a PV between 4 and 4.25 (inclusive). Options B and C expand the group of locally read applicants to include PV ranges of 3.5-4.25 and 3-4.25, respectively. There were a total of 6,972 applications to UC Davis last year from students who received an HR score from
UCLA of either 4 or 4.25. The two columns of the correlation table that show the distribution of PV scores for these applicants is highlighted in grey on all of the attached charts.

In Option A, a total of 6,149 applications would be read, those having a PV between 4 and 4.25. The two rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, only 3,660 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (52% of the total). The rest (3,312 or 48% of the total) would still need to be read, possibly near or after the end of the regularly scheduled reading time frame, as the actual UCLA HR scores become available.

In Option B, a total of 10,857 applications would be read, those having a PV between 3.5 and 4.25. The three rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, 5,781 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (83% of the total). A remainder of 17% would still need to be read in this case. However, 3,885 extra applications (having actual UCLA scores of less than 4 or greater than 4.25) would have been read as well during the process.

In Option C, a total of 13,799 applications would be read, those having a PV between 3 and 4.25. The four rows of the correlation table that show the distribution of actual HR scores for these applicants are highlighted in grey. As highlighted in red, 6,209 of the total number of applications with actual HR scores of 4 or 4.25 (6,972) would be read (89% of the total). A remainder of 11% of the total would still need to be read in this case. However, 6,827 extra applications (having actual UCLA scores of less than 4 or greater than 4.25) would have been read as well during the process.

The following table summarizes the results of the analysis discussed above.

<table>
<thead>
<tr>
<th>Option</th>
<th>PV Range</th>
<th>Apps Read</th>
<th>Apps Read w/ 4–4.25 HR</th>
<th>% of all Apps w/ 4–4.25 HR</th>
<th>Extra Apps Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4 – 4.25</td>
<td>6,149</td>
<td>3,660</td>
<td>52%</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>3.5 – 4.25</td>
<td>10,857</td>
<td>5,781</td>
<td>83%</td>
<td>3,885</td>
</tr>
<tr>
<td>C</td>
<td>3 – 4.25</td>
<td>13,799</td>
<td>6,209</td>
<td>89%</td>
<td>6,827</td>
</tr>
</tbody>
</table>

Based on these results, the optimal range of PV scores that should trigger a local read of applications for which we expect to receive UCLA HR scores would seem to be between 3.5 and 4.25 (Option B). This would result in a local read of 83% of the total number of applications having actual UCLA HR scores of either 4 or 4.25, while significantly minimizing the number of extra applications that have scores outside of this range that would be also read in the process.

Notes:
1. The analysis above is based on application of the UCOP PV formula that was optimized for last-year's CA residents. The accuracy of this formula in predicting the actual UCLA HR scores of this year’s applicants is unknown but expected to be similar to that reflected in the cross-calibration table discussed above, assuming that HR practice and outcomes at UCLA will be substantially similar to those of last year. In addition, it is assumed that comparable accuracy of the PV formulas will result when they are used to predict the HR scores of applicants to UC Davis who also applied to UC Irvine but not UCLA because of the similarity of the HR processes at UC Irvine and UCLA. When these additional applications from UC Irvine are considered, the overall number of applications that are tagged for local evaluation may become less than that indicated in the table above, although the percentages in the fifth column would be expected to be similar.

2. Analyses of the correlation between PV and actual HR scores for non-resident domestic and international applicants to UC Davis who also applied to UCLA, similar to that presented above, should also be performed in order to determine the optimal ranges of PV scores that should trigger a local read of applications from each of these groups. Absent the results of such analyses, the use of the same range of PV scores for these groups as that used for CA residents should be acceptable, given the relatively small numbers of non-resident applicants.

3. It is expected that UCOP will create PV formulas for use by UC Davis each year based on multivariable-regression analysis of actual HR scores assigned at UCLA during the most recent admissions cycle. However, the analysis presented above should be completed by UA at UC Davis each year based on updated PV formulas received from UCOP in order to evaluate their effectiveness and determine the optimal ranges of PV scores that will trigger local reads. This will be especially important as we begin to make use of HR scores from additional campuses other than UCLA in the future and perhaps begin also to focus on different and/or reduced ranges of externally-derived HR scores for further, local evaluation.

4. It would be prudent to take full advantage of UCOP assistance in providing PV formulas annually for prediction of HR scores assigned at UCLA (and eventually other campuses) and to focus our efforts on assessing the effectiveness of the local application of the PV formulas, as described above. The analysis presented above illustrates the importance of the accuracy of the PV formulas as well as the procedures and metrics used for measuring their effectiveness in reducing reader workload. Practicable assessments of the accuracy and effectiveness of any new PV formulas (such as the assessment measures defined in the table presented above) should be performed annually.

5. It would be worthwhile for UA to develop local PV formulas based on regression analysis of UCD HR scores, when available, to enable the
prediction of the UCD HR scores. These formulas would be potentially useful in our algorithmic process of converting HR scores received from other campuses into UCD HR scores; this process is described in detail in the document entitled “Converting UCLA HR Scores into UCD HR Scores (Algorithms & Simulation Results),” which is available on the ASIS A&E committee whiteboard. The UCD PV formulas might also be of interest to other UC campuses who might wish to use HR scores assigned at UC Davis to reduce reader workload, in order to identify a subset for further local review prior to receiving actual HR scores from UC Davis.
### OPTION A: Reading all apps with PVs between 4 and 4.25 (inclusive)

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**Total** | 400 | 612 | 1172 | 1263 | 1851 | 1776 | 2452 | 2511 | 4257 | 2715 | 3088 | 1031 | 977 | 24105

6,149 Apps Read with 4 - 4.25 PV

3,660 Apps Read with 4 - 4.25 Actual HR (52% of the total)

6,972 Total Apps with 4 - 4.25 Actual HR

6972 Total Apps with 4 - 4.25 Actual HR
OPTION B Reading all apps with PVs between 3.5 and 4.25 (inclusive)

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10,857 Apps Read with 3.5 - 4.25 PV

5,781 Apps Read with 4 - 4.25 Actual HR (83% of the total)

6,972 Total Apps Read with 4 - 4.25 Actual HR (83% of the total)

3,885 Extra Apps Read (those with Actual HR not 4 or 4.25)
# OPTION C: Reading all apps with PVs between 3 and 4.25 (inclusive)

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**Actual UCLA HR Score**

- 6,209 Apps Read with 4 - 4.25 Actual HR (89% of the total)
- 6,972 Total Apps with 4 - 4.25 Actual HR
- 6,827 Extra Apps Read (those with Actual HR not 4 or 4.25)

**13,799 Apps Read with 3 - 4.25 PV**