

Undergraduate Senate Elections by Single Transferable Vote

Explanation and Justification for Single Transferable Vote

The single transferable vote (STV) is a voting system designed to achieve or closely approach proportional representation. Each voter *ranks* candidates on a single ballot which maximizes the effectiveness of students' votes, as votes cast for a particular set of candidates will be transferred to other candidates based on each voter's preferences.

Practical Effect of STV

STV will push students campaigning for office to expand their outlook and build a broad coalition in support of their candidacy. If a voter's preferred candidate does not receive enough support to win the election, their vote will be transferred to their second or third preference, mitigating the effect of a "wasted vote". This will also encourage broader representation in elected bodies, because slates of candidates will have to appeal to a wider range of constituent voters in order to be ranked highly on as many ballots as they need to be elected. STV is preferable to the current system, which is most accurately described as First Past the Post (FPTP). In a FPTP system, many students' votes may be cast for candidates who are not ultimately elected. However, a majority of students may have preferred one of the candidates who was not elected instead of the elected candidates. Under STV, the candidate who receives the least amount of first preference votes is eliminated, but all of the votes for that candidate are then transferred to the second most preferred candidate for that voter.

The Committee acknowledges that the Single Transferable Vote System adds complexity to the work of the Elections Commission, so a fully-functional, tested, and expert-reviewed implementation to aid the Commission is provided in the referenced paper in the proposed bylaw amendment. STV does not, however, add much complexity from the perspective of the voter; in fact, it eliminates most spoiler effects of FPTP systems. Voters simply rank candidates by preference without needing to factor in second-order effects.

Deliberations of the Committee

The Committee believes that an SVP system will provide for an inclusive and diverse Undergraduate Senate. This amendment was initiated and supported by both Undergraduate Senate representatives.

In order to allow for flexibility in the implementation of the STV process, the Committee provided for the modification of the exact algorithms used to implement STV in the Joint Bylaws. The Constitutional amendment incorporates the general provisions of STV and also a mandate to use STV. The exact procedures are left to the Joint Bylaws and Undergraduate Senate Bylaws. We propose one set of procedures, which the Legislative bodies could eventually amend if necessary.

The Committee also incorporated a backstop provision that would allow the Undergraduate Senate to suspend the use of STV voting and return to FPTP voting for the duration of an election. This suspension will require a two-thirds vote of the Undergraduate Senate and must be adopted prior to the start of the election. We envision this provision will not be used, but if the Elections Commissioner makes it clear to the Undergraduate Senate that it is impossible to implement STV for a particular election, the Undergraduate Senate could issue an exception for that election. However, this exception expires after the conclusion of that particular election and hopefully STV could be adopted the following year. In the event that the Undergraduate Senate does not issue an exception, the Commissioner would be required to conduct the election via the STV process.

Recommended Ballot Text

If passed, this amendment would change the election procedure of the UGS to incorporate ranked preferences, adopting a procedure known as the Single Transferable Vote. All voters would rank as many eligible candidates as they choose, and a weighting procedure would be used to redistribute votes based on later preferences. STV is already used internationally in numerous national and regional elections and is similar to the Ranked Choice Voting system used for ASSU executive elections. The proposed implementation is derived from <https://arxiv.org/pdf/2102.05801.pdf>. A non-technical explanatory video can be found here: <https://www.youtube.com/watch?v=l8XOZJkozfl>. Below you will find the original language in the ASSU Constitution and the language that will replace this language.

Current Language in the ASSU Constitution Regarding Senator Elections

For reference, below is the current version of Article II, Section 3, Part A that will be struck and replaced by this amendment:

~~A. Election of the Undergraduate Senate~~

- ~~1. The fifteen members of the Undergraduate Senate shall be elected from and shall represent the undergraduate population.~~

- ~~2. Each member of the undergraduate population voting may cast one vote for as many Undergraduate Senate seats as are assigned to the undergraduate population.~~
- ~~3. The upper-class candidates who receive the highest number of votes among all upper-class candidates become members of the Undergraduate Senate
 - ~~a. This section shall only apply to Undergraduate Senate elections in which all fifteen seats are available for election.~~
 - ~~b. An upper-class candidate is a candidate who anticipates holding academic status as an Undergraduate Junior or higher, as defined by the University Registrar, at the beginning of Fall Quarter of the year of the majority of his/her term. In case of dispute, decisions regarding whether a candidate is an upper-class candidate shall be made by the Elections Commission.~~
 - ~~c. The number of upper-class candidates elected under this section shall be defined in the Undergraduate Senate By-Laws. The resolution of ties shall also be set in the Undergraduate Senate By-Laws.~~
 - ~~d. Any upper-class candidates who are not elected under this section may be elected under Section 4.~~~~
- ~~4. After the upper-class candidates have been seated, all remaining available seats shall be filled by the remaining candidates who receive the largest number of votes, up to the maximum fifteen members.~~
- ~~5. If at any time more than one-third of the Undergraduate Senate seats are vacant, the Undergraduate Senate shall immediately call a special election to fill all vacant seats.~~

Proposed Constitutional Amendment

In Article II, Section 3, Part A, the current text is amended by striking it from the Constitution and replacing this text with the following text:

A: Election of the Undergraduate Senate

1. Undergraduate Senate members will be elected from, and will fairly represent, the entire undergraduate population.
2. If at any time more than one-third of the Undergraduate Senate seats are vacant, the Undergraduate Senate will immediately call a special election to fill all vacant seats.
3. The voting ballot, whether paper or electronic, will allow for the ranking of candidates by voters. No equal ranks across candidates will be allowed. Full ranking will not be required, and no ranking will be assigned for unranked candidates.
4. The Single Transferable Vote method will be used to elect Undergraduate Senators.
5. All raw, unaggregated, uncorrected, anonymized ballot data must be published by the elections commission in a randomized order, in a machine-readable format, within 48 hours of the election. This data must be publicly accessible by all members of the Association. These results must include all votes for all candidates, including those eliminated, disqualified, or otherwise ineligible. No election for Undergraduate Senators may be certified prior to the publication of this data.
6. The Undergraduate Senate will as needed, through appropriate bylaws, specify and clarify procedures consistent with this section. Procedures specified in the Joint Bylaws will take precedence over procedures specified in the Undergraduate Senate Bylaws.
 - i. In the event of the impossibility or infeasibility of instituting a single transferable vote system, appropriate procedures to elect Undergraduate Senators through plurality elections may be adopted. These procedures must be adopted by two-thirds of the Undergraduate Senate and will expire after the end of the next election. Each member of the undergraduate population may cast one vote for every available Undergraduate Senate seat. Available seats in the Undergraduate Senate will all be filled by the candidates who receive the largest numbers of votes.

Joint Bylaws Amendment to Accompany Constitutional Amendment:

Insert the following section at the end of Appendix I of the Joint Bylaws:

Section 8: Procedures Related to Undergraduate Senate Elections

1. All procedures in this section will be utilized in all Undergraduate Senate Elections.
2. The Undergraduate Senate Elections will be conducted via a Single Transferable Vote (STV) method with decreasing quotas and forwards tie-breaking.
3. All ballots will be pre-processed and all invalid data will be removed as follows:
 - a. All ballots must contain preferences numbered consecutively starting at 1 (as the most preferred candidate), with no duplicate rankings.
 - b. All candidates need not be ranked.
 - c. If a candidate has formally withdrawn from the election, but is still listed on the ballot, rankings will be corrected to omit the withdrawn candidate and ensure the remaining candidates are ranked in consecutive order and counted as such.
 - d. In the case of a nonconsecutive but nonequivalent ranking, the rankings shall be interpreted as though they were consecutive.
 - e. In the case of other inconsistencies on an individual ballot, all rankings on that ballot—including and following that inconsistency—shall be omitted from that ballot.
 - f. The STV algorithm will be used as follows to evaluate the outcome of the election:
 - i. Where (N) candidates run for (M) seats
 - ii. Count all candidate votes based on first choice ballots
 - iii. While there remain unfilled seats, repeat the following procedure:
 1. Let the quota (Q) be the total sum of weighted preferences, divided by the remaining number of seats plus one, plus 0.001.
 2. If the unseated candidate with the highest number of first-choice votes has a vote count greater than or equal to the quota, perform the following procedure:
 - a. Elect the candidate with the highest number of votes
 - b. The surplus ratio (S) shall be the vote count of the candidate, minus the quota, divided by the vote count of the candidate
 - c. The surplus ratio shall be applied to the weights of the ballots that listed the candidate as first preference
 3. If, however, the condition in (2) is not satisfied, the candidate with the fewest first-choice votes is eliminated

4. The ballots for the candidate seated or eliminated will have all rankings decremented, with their second-choice preferences becoming the new first-choice preferences.
 5. The first-choice vote counts of all candidates neither elected nor eliminated will be recalculated based on the new first-choice preferences and weights
- g. When ties in the selection of the candidate with the highest or lowest number of votes in the algorithm above arise, ties will be broken as follows:
- i. In the case of elimination, the candidate with the fewest votes on the first (or the earliest count in which they had an unequal number of votes) count will be eliminated.
 - ii. In the case of election, the candidate with the most votes on the first (or the earliest county in which they had an unequal number of votes) count will be elected.
 - iii. In the case where a tie is unresolved, a candidate will be eliminated/elected based on a ranking of the number of raw preferences, in order of decreasing preference.
 - iv. In the case where a tie is still unresolved, it will be broken by random draw, using the current year as the seed.
4. A reference implementation from which the above procedures were derived can be found in “The Vote Package: Single Transferable Vote and Other Electoral Systems in R” by Adrian E. Raftery et al. (available at <https://arxiv.org/pdf/2102.05801.pdf>).