Task Force on Teaching Implications of Increased Enrollment

The University of Texas-Dallas (UTD) has experienced tremendous enrollment growth going from 14,523 students a decade ago to 26,797 in fall 2016; this exceeds projections in the most recent UTD Strategic Plan¹ and new projections anticipate over 4,500 more students by 2020.² How such increases are managed has significant implications for teaching and student learning. Accordingly, in May 2016, Interim President Wildenthal and Interim Provost Musselman authorized the creation of the “Task Force on Teaching Implications of Increased Enrollment” to examine the implications of this upward trend in enrollment for instruction at UTD. The task force was asked specifically to consider:

- How are class sizes likely to be impacted by such increases?
- What implication does this have for current classroom space and future classroom design?
- How might instructional strategies be altered?
- How might instructional technology be improved?
- How might assessment approaches be changed?
- How would class scheduling be impacted?
- How might increased enrollment affect the use of part-time faculty and PhD candidates as instructors of record?
- How might increased enrollment influence the adoption of online, hybrid, “flipped classrooms,” and other pedagogical approaches?
- What additional resources would be required?

Principles

The Task Force adopted a series of principles that guided its deliberations and believes that any changes in policy or practice in light of increased enrollment should reflect those principles:

- Any changes should produce outcomes that are as least as effective and ideally more effective than the status quo in promoting student learning;
- Any changes should reflect a long-term orientation and not merely be designed to address immediate problems, although some stop-gap measures might be needed;
- All students admitted to UTD should have the courses available to graduate in “normal” time for their programs;
- Any changes should reflect best practices that enhance student learning;
- Space considerations should be regarded as constraints or facilitating conditions for instruction, rather than the primary challenges to be addressed;
- The creation of new programs or the expansion of existing ones should be accompanied by the necessary resources up front, and should be justified by market considerations (student demand and peer competition) and the assurance of high quality learning experiences for students. Continuation of extant programs should meet the same standards.
- The diversity of schools, programs, and associated instructional responsibilities – and differential impact of increased enrollment -- means that “one size doesn’t fit all,” and instructional responses to increased enrollment will need to be multifaceted and vary across multiple levels (campus, school, program, course).

Enrollment increases pose a number of challenges for UTD. Past increases have already put a strain on faculty, students, services, and space allocation. Adaptations have often been ad hoc, slow, and inconsistent with best pedagogical practices. Future increases will exacerbate those difficulties and potentially create new ones. Such increases also jeopardize a number of university goals, including those in Chancellor McRaven’s Quantum Leaps. Addressing concerns with increased enrollment will require accounting both for past enrollment growth in most cases as well as anticipated future growth.

After consulting with numerous stakeholders, analyzing selected data, looking at peer institutions, and referencing the scholarship of teaching and learning, the Task Force offers the following recommendations and considerations.

Central Recommendation

Instructional decisions are primarily made at the school and program level, and responses to increased enrollment need to be initially formulated at that level in light of specific enrollment pressures, instructional capacity, and other factors. These would be subject to review and approval at higher levels and ultimately will need to be reconciled and integrated with the plans put forward by other units (e.g., programs overseen by schools, schools overseen by campus level units).

- Schools should be charged with developing strategic plans to meet the challenges of increased enrollment, both recent and prospective, for their programs and course offerings. Such plans should be formed after significant consultation with faculty, staff, and students in the affected units in order to garner their insights and support. Final plans submitted to the Provost should include detailed strategies and action items as well as associated resource requirements. Proposals should reflect and be justified in terms of the guiding principles noted above as well as best practices at peer institutions. Some or all of the options detailed below should be included in those plans.

- In order to ensure accountability, UTD should establish a strict timeline for school plans, benchmarks for implementation, and an oversight committee to monitor and assess implementation.

Managing Enrollment

Managing enrollment would relieve some of the instructional pressures on schools and programs as well as better facilitate long-term planning to account for recent and any future increases. Enrollment limits for graduate programs are already at the discretion of individual schools and programs, but additional limits might come at the cost of foregone revenues. Enrollment limits at the undergraduate level could be established with respect to majors, and there are a number of related decisions and concerns that would need to be decided at the campus level. These include (1) whether admissions would be limited campus-wide in addition to majors; (2) how to accommodate transfers into majors for students both within and outside UTD; (3) whether adjustments need to be made to guaranteed admission standards, and (4) how the reviewed admissions process would be revised. The University of Texas-Austin and University of Illinois at Urbana-Champaign have suitable models for these kinds of arrangements, although some significant institutional restructuring at UTD would be required to emulate these.

- Schools should propose enrollment limits for particular majors as necessary in order to ensure the quality of instructional programs and reflective of instructional delivery capability.
Increasing Class Size

The current distribution of class sizes is given in Appendix A. An obvious response to increasing enrollment is to increase the size of course enrollments, especially in high demand, core curriculum courses. Nevertheless, there are some significant space constraints and/or pedagogical costs that accompany a wholesale strategy of increasing class size. In addition, graduate courses are more effective when kept small, and a number of them are already far larger than optimal for student learning and interaction.

UTD has comparatively few courses in the 100-200 (1.4%) and >200 (0.5%) enrollment ranges, especially compared to other R1 universities. Pedagogically, increasing the size of these courses would likely have little effect, but there is presently not enough large classroom space to accommodate such an expansion in conventional course formats.

Some courses currently in the 50-70 enrollment range (currently courses in the 50-100 range constitute approximately 9% of offerings) could be expanded to the 110-125 range, and space is available to accommodate such changes. Resource requirements should be small, except perhaps for supplying graders or teaching assistants for the expanded courses. Such an expansion, however, is likely to prompt changes in instructional delivery that undermine student learning. Research indicates that students in larger classes have significantly fewer interactions with instructors and peers, and this effect was particularly acute for first-generation and minority college students. When classes get larger, there is a risk of losing the personalized interactions between students and faculty, as well as among students, about course ideas and connections between course concepts across the curriculum that are central to students’ success. In addition, instructors in large classes are more likely to lecture and employ assessments that do not involve writing or advanced critical thinking (e.g., multiple choice tests); these run contrary to broader trends in higher education over past few decades toward active learning and writing across the curriculum that enhance student learning.

- **Increasing class size should be done on a limited and targeted basis and confined to contexts in which pedagogically sound practices will not be compromised.**

Use of Online and Blended Learning Formats

UTD does not have an extensive array of online courses or those that are blended. Currently, only 5.8% of courses are online (85-100% online) and only 1.7% are blended learning (i.e., 50-84% online); only 1 of the 15 largest enrollment courses is online. These percentages at UTD have not changed dramatically over the past five years. Online course offerings at selected other universities are given in Appendix B.

Studies indicate that learning outcomes are comparable for online versus conventional course formats, and those for blended learning are slightly better than either of those alternatives. Online and blended learning classes can potentially accommodate larger enrollments per course. Rather than being constrained by space, they actually free up classrooms; for example, a large class normally taught on Mondays and Wednesdays might only use a classroom on one of those days if lectures and other activities were transmitted online earlier in the week. The “Flipped Classroom” model has great instructional

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3 These and related references are based on Fall 2015 figures.
5 Short video lectures are viewed by students at home before the class session, while in-class time is devoted to exercises, projects, or discussions.
promise, but some variations are more applicable to the UTD context than others. For example, large enrollment courses that pair recorded lectures with small discussion or activity sections are not a viable option at UTD in that multiple small classrooms would be needed each week per course and these are not currently available.

Existing eLearning infrastructure could accommodate an expansion of online and blended learning courses, but additional staff would be necessary for training. The eLearning team is strongly supportive of such an initiative. Furthermore, UTD already has nationally ranked online programs as examples for emulation. In addition, significant resources would be needed to facilitate course development and revision by faculty members; the Center for Teaching and Learning has a model, including revenue sharing, for such an arrangement.

- **Blended learning courses should be significantly expanded, with the highest priority given to large enrollment, core curriculum courses.**

- **Online instruction should be expanded especially in areas designed to reach non-traditional students and/or in which course delivery would provide UTD course access to meet student needs (e.g., summer term courses, second 8 week courses).**

### Increased Staffing

Online/blended learning courses and increasing enrollment size of current course offerings will not address most of the increased demand for slots in courses. Beyond merely staffing courses, increased enrollment places substantial pressures on extant faculty members in terms of general advising, office hours, writing recommendations, and other forms of ongoing interactions with students. Additional instructors and support will be needed.

The challenges faced and the possible solutions vary substantially according to course, program, and school. The list below represents the menu of options available. It is likely that schools will need to adopt a mixture of different staffing strategies to meet enrollment demands. The Task Force notes that increasing staff levels also creates additional space pressures for faculty offices, laboratories, and research space – the type and magnitude depending on the type of instructor hired.

1. Hiring more temporary or part-time faculty. This is perhaps the least expensive option in terms of resources (lower salaries, no benefits), but some programs already have difficulty finding qualified instructors, and part-time faculty are not available to meet the demands of increased undergraduate research and senior design projects.

2. Hiring more senior lecturers. These generally cost more than part-time faculty (on a per class basis) but provide greater continuity and dedication to students. At the present time and in most fields, there is an oversupply of qualified PhDs available. Such faculty members, however, provide few or no benefits in terms of research reputation or grant money.

3. Hiring more tenure-track faculty. These are the most costly in terms of salary and any startup costs, offset by grant procurement. They also offer approximately half the number of courses relative to senior lecturers on a yearly basis. Priority should be given to “joint hires” or faculty who can serve the instructional needs of more than one unit, and in particular across schools.

4. Teaching Assistants as Independent Instructors. Already in use in some units, senior doctoral students (presumably ABDs) could offer undergraduate, lower level, and lower enrollment
courses. Potential barriers include (1) limited numbers available, (2) lack of training and/or English language abilities, and (3) loss of TAs who otherwise would act as graders or RAs.

5. Undergraduates as Teaching Assistants. Already in use in some units, these would assume some duties currently carried out by graduate students. Training protocols would be required. These are relatively low cost and might in some cases be superior to graduate students.

Scheduling

Working with the Office of the Registrar, programs schedule classes according to instructional needs, faculty preferences, and space availability. At present, the registrar has indicated that the average classroom is used 50 hours per week. Nevertheless, there are some open days and times in which classrooms are not fully utilized. Open times offer some alternatives for scheduling classes, especially in light of expanded class offerings to meet increased demand: (1) selected times on Fridays, much of Saturdays, and all day Sundays; (2) 8:00 AM on Mondays and Wednesdays, (3) evening lab classes that don’t have a common exam, (4) Monday, Wednesday and Friday classes, and (5) evening classes or late afternoon classes, in particular for resident undergraduate students.

Scheduling new or existing courses at the above days and times are constrained by other factors even if they are not constrained by lack of space. Undergraduate students and instructors alike resist classes at these times. Resources are uncertain, but seem to be limited to additional building maintenance and security when classrooms are used.

- Programs should consider alternative days and times for course offerings in light of student demand and preferences as well as faculty availability. Pilot offerings should be used to test the viability of alternatives.

Other Recommendations

Student Services

Overall, enrollment pressures threaten the legal and ethical obligations that UTD has toward its students in providing an effective learning environment. Increases in student enrollment produce a proportionate increase in demand for a variety of student support services and programs. Inadequacies threaten UTD progress in recruiting, retention, and graduate rates.

Increased enrollment needs to be accompanied by commensurate opportunities and support for academic programs such as study abroad and internships. Furthermore, strains on advising at all levels are evident as well. Particularly important are programs such as Peer-Led Team Learning (PTLT) and Supplemental Instruction (SI), which are strongly associated with student success but whose services have not kept pace with increased demand. These programs and assistance are vital parts of students’ academic experience and progress.

Although a variety of student services (e.g., AccessAbility, Testing Center, Judicial Affairs, Resource Connections, Academic Outreach, Counseling Center) do not directly provide instruction, they do provide critical support to students and faculty in assisting in and promoting student learning. Staffing levels for UTD support units have not necessarily kept pace with past enrollment increases and future increases will further stress some services. Some current staffing levels for units comparable to those at Texas-Austin,
Virginia Tech, and Georgia Tech (see Appendix C) indicates that UTD staffing levels are sometimes dramatically smaller than at peer institutions.

Other support elements, such as computer labs with specialized software, are sensitive to the demands of increased enrollment and the expansion of online and blended learning courses.

- **Student services staffing levels and configuration, as well as space requirements, should be reviewed and adjusted for recent and future enrollment increases. Such a review would include developing target staffing goals, based on comparisons with peer institutions and professional guidelines (e.g., mental health) as appropriate.**

Resources for new hires will be required to meet current and future enrollment; these include salaries and benefits and likely suitable office space.

**New Facilities**

No matter which of the above approaches are adopted, more classroom space will be essential in the long run. Classroom design is correlated with student learning outcomes, and if done properly, new or reconfigured classroom spaces can enhance existing courses as well as new offerings. Currently, UTD lacks classroom space capable of accommodating up to 500-600 students, and there is also a shortage of classrooms for classes with 10-35 student enrollment. The construction of two planned buildings on campus would ameliorate some current classroom pressures, but will not address all of them and continued increased enrollment would eliminate any progress and likely exacerbate existing problems. Models for effective classroom design include *Scale-Up* (Student Centered Active Learning Environment with Upside Down Pedagogies), developed at North Carolina State and used by a number of universities including the University of Minnesota and Virginia Tech. Whatever the approach, faculty input is essential in classroom and building design.

- **Build one or more new buildings dedicated primarily or exclusively to classrooms. These should include large lecture rooms (300-500), but might involve a multistory structure with large rooms on the lower floors and other kinds of classrooms and meeting space on the upper floors. Flexible seating arrangements and sizes, and common spaces, must facilitate student interactions as well as meet the needs of different courses and pedagogical approaches (e.g., project or team based learning).**

This will require significant resources up front and maintenance resources thereafter.

The committee examined the use of additional satellite campus locations, but did not find any clear instructional advantages. Significant drawbacks included those associated with cost, transportation, and convenience. This is not to say that the purchase of existing facilities that are geographically proximate to the central campus is undesirable. This is a potential option and one not mutually exclusive with new buildings, but the instructional impact (positive or negative) will vary according to location, actual usage, and a host of other factors.

**Better Planning**

Program heads and others often complain about the need for developing course schedules more than a year in advance and then engaging in last minute scrambles to add courses and find qualified instructors. Also problematic is securing space for instructional activities that support or supplement classroom instruction; such activities include review sessions, special events, guest speakers, and the like. The present system does not allow staff to identify and allocate available space easily across campus and
make reservations; various units also hoard space under their control. Enrollment pressures make a bad situation even worse.

- **Develop better enrollment and course forecasting models, and share the outputs with schools and programs with suitable advance notice.**

- **Expand the space identification and allocation system to all rooms over a capacity of 15, including those in University Housing, and allow these to be scheduled through a single office or online platform (with limited and appropriate exceptions).**

Resource requirements for these recommendations should be limited to maintenance and trouble-shooting after start-up costs.

Respectfully submitted,

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Darren Crone (eLearning)
Kimshi Hickman (Student Success Center)
John Sibert (NSM)
Sarah Maxwell (Undergraduate Education and EPPS)
Mark Spong (ECS)
Todd Fechter (ATEC)
John Gooch (A&H)
Matthew Polze (JSOM)
Karen Huxtable-Jester (BBS and CTL)
Tonja Wissinger (IS)

In addition, the following five student leaders (three undergraduates and two graduate students) were consulted after an initial draft report was written and they provided feedback and suggestions at two subsequent stages that were incorporated into the final report:

Peter (Ohagwu) Ozoemenam
Hannah Hubbard
Aniket Patil
Akshitha Padigela
Joey Campain
Appendix A

### UTD Fall 2015 Class Enrollment

<table>
<thead>
<tr>
<th>Class Enrollment</th>
<th>UGRD</th>
<th>GRAD</th>
<th>Total</th>
<th>UGRD</th>
<th>GRAD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Under 20</td>
<td>1,158</td>
<td>1,445</td>
<td>2,603</td>
<td>40.8%</td>
<td>76.8%</td>
<td>55.1%</td>
</tr>
<tr>
<td>(2) 20-50</td>
<td>1,307</td>
<td>301</td>
<td>1,608</td>
<td>46.0%</td>
<td>16.0%</td>
<td>34.0%</td>
</tr>
<tr>
<td>(3) 51-100</td>
<td>289</td>
<td>131</td>
<td>420</td>
<td>10.2%</td>
<td>7.0%</td>
<td>8.9%</td>
</tr>
<tr>
<td>(4) 101-200</td>
<td>65</td>
<td>3</td>
<td>68</td>
<td>2.3%</td>
<td>0.2%</td>
<td>1.4%</td>
</tr>
<tr>
<td>(5) Over 200</td>
<td>22</td>
<td>2</td>
<td>24</td>
<td>0.8%</td>
<td>0.1%</td>
<td>0.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,841</td>
<td>1,882</td>
<td>4,723</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Appendix B

### Comparison of Online Course Offerings at Selected Institutions

<table>
<thead>
<tr>
<th>School</th>
<th>Course Development</th>
<th>Number of online courses offered in fall 16 (approx.)</th>
<th>Mandatory or optional training</th>
<th>Incentive for faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT Dallas</td>
<td>• Centralized, team of instructional designers and media specialists</td>
<td>• 145</td>
<td>• Optional Online Teaching Certification (3 levels)</td>
<td>• Some schools offer stipend</td>
</tr>
<tr>
<td></td>
<td>• Full service course development option</td>
<td></td>
<td></td>
<td>• Some schools offer course release</td>
</tr>
<tr>
<td></td>
<td>• Faculty course development option (consultation, and training available upon request)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virginia Tech</td>
<td>• Centralized, team of instructional designers trains faculty</td>
<td>• 1,100</td>
<td>• Mandatory, may choose from a menu of modules</td>
<td>• Stipend</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>• Currently decentralized, moving to a centralized model</td>
<td>• 74 (in Engineering School)</td>
<td>• None currently, developing a 3 hour training course</td>
<td>• Course Release</td>
</tr>
<tr>
<td></td>
<td>• Faculty develop own courses</td>
<td></td>
<td></td>
<td>• New computer</td>
</tr>
<tr>
<td>UT Austin</td>
<td>• Decentralized</td>
<td>• 50</td>
<td>• None required</td>
<td>• No known incentives</td>
</tr>
<tr>
<td></td>
<td>• Moving to centralized media production model</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Faculty develop own courses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C

**Comparison of Selected Student Services Staffing Ratios (per capita)**

<table>
<thead>
<tr>
<th>Category</th>
<th>UTD</th>
<th>UT-Austin</th>
<th>Virginia Tech</th>
<th>Georgia Tech</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>26,797</td>
<td>50,950</td>
<td>31,224</td>
<td>25,034</td>
</tr>
<tr>
<td>International Student Services</td>
<td>3,828:1</td>
<td>1,698:1</td>
<td>4,460:1</td>
<td>927:1</td>
</tr>
<tr>
<td>AccessAbility</td>
<td>8,932:1</td>
<td>5,095:1</td>
<td>2,602:1</td>
<td>5,007:1</td>
</tr>
<tr>
<td>Counseling</td>
<td>1,117:1</td>
<td>1,108:1</td>
<td>743:1</td>
<td>863:1</td>
</tr>
<tr>
<td>Career Center</td>
<td>744:1</td>
<td>N/A*</td>
<td>1,200:1</td>
<td>963:1</td>
</tr>
</tbody>
</table>

*by individual college

Most other student services (e.g., Student Success Center, Academic Bridge) are not comparable at all across campus or don’t provide details on their websites.