

ITU

MBA Signature Assignment Analytics



1.0 Purpose

This document is a preliminary analysis of the efficacy of ITU's Signature Assignments as administered by the Department of Business Administration. These signature assignments constitute internal benchmarks of performance over time and between sections of the same courses and terms. This report addresses the progress of students along various levels of learning outcomes.

2.0 Introduction

A student, through their MBA program, is exposed to a variety of academic and business concepts. Signature assignments are administered in every course in the Business Department as a means of assessing student learning across multiple learning outcomes.

The signature assignment at ITU is consistently applied in each section of the same course. This enables effective analysis and decision making for the efficacy of programs administered by ITU's Business Department.

3.0 Scope

For the purposes of this report, analytics are presented for signature assignments only within the core courses in the MBA program. Signature assignments are administered across every course in the department. However, core courses are mandatory for every student enrolled in the MBA program and together, constitute a complete range of learning outcomes to assess students.

In addition to the core courses, we have compiled results from signature assignments for certain randomly selected elective courses within the MBA programs. This data has been analyzed for three (3) trimesters between Fall 2016 and Summer 2017.

Signature assignments take the form of case study analyses, presentations, and research papers among others. However, final and mid term exams are excluded from the scope of signature assignments and are administered separately in each course. Faculty in the department does not consider term exams as signature assignments.

In this report, six (6) consecutive trimesters of data are presented for all core courses. However, we have used three (3) consecutive trimesters of data for elective courses.

4.0 Signature Assignment and Learning Outcomes

In generating this report, the following parameters have been used.

All courses in the Department of Business Administration follow a hierarchy of learning outcomes. This hierarchy is represented as follows:

Course Learning Outcomes (CLO) > Emphasis Learning Outcomes (ELO) > Program Learning Outcomes (PLO) > Institutional Learning Outcomes (ILO)

All core courses and randomly selected elective courses and their respective signature assignments used for comparison in this report are presented below:

Course Code	Type of Course*	Course Name	Signature Assignment Type
MGT 503	Core	Organizational Leadership Theories	Case Study Analysis and Presentation
FIN 534	Core	Financial and Economic Analysis	Case Study Analysis and Presentation
MIS 527	Core	Technology and Operations Management: Creating Value	Case Study Analysis and Presentation
MKT 551	Core	Competitive Marketing Strategies	Case Study Analysis and Presentation
MIS 545	Elective	Data Mining and Business Intelligence	Research Report
BUA 500	Elective	Principles of Business	Project and Presentation

Analytics			
BUA 501	Elective	Quantitative Analysis	Project Analysis
MIS 540	Elective	Information Resource Management	Case Study Research Paper
MKT 588	Elective	Consumer Behavior	Research Report and Presentation

* Core courses are offered in multiple sections (online, weekend, weekday)

Each of the signature assignments listed above is assessed in line with multiple course learning outcomes specific to the course. However, these CLOs further aggregate into ELOs as explained in the hierarchy above, providing for a more accurate comparison.

5.0 Key assumptions

The signature assignment administration process and some of the faculty for these courses have undergone change over time. In addition, the primary learning management system, EMS, which is proprietary to ITU, has undergone some change over time to increase efficiency.

As a combination of the above, the raw data received for signature assignments needed to go through a data cleansing process for standardization. This involved working through the raw data and assigning a flag or indicator for signature assignments to distinguish these from other assignments. In addition, for consistency, these indicators were cross-referenced to professors' syllabi to ensure that the assumptions for the flagging system were reasonable and consistent.

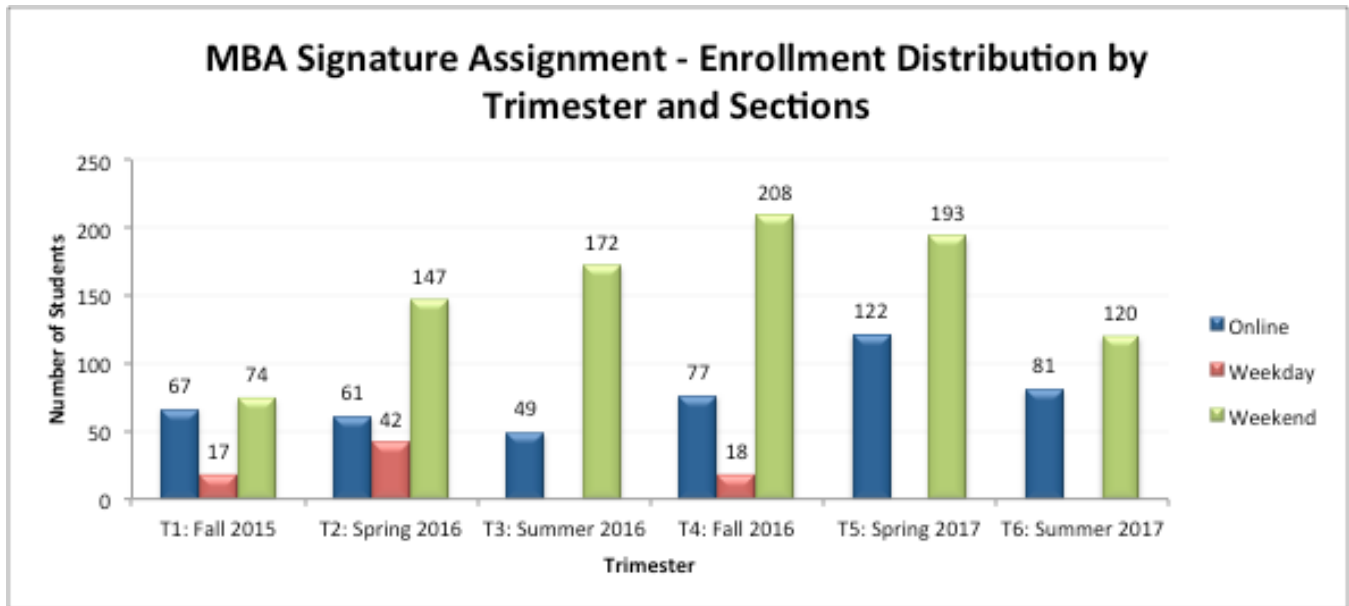
During the flagging process explained above, it was noted that professors used different yardsticks to allot points or marks to assess students on their performance. For the purposes of this report, calculating a simple percentage standardized the point allotments to students. This was calculated by dividing the points allocated to the student by the total allotment of points available and multiplied by 100.

6.0 Checking and Assurance

In Spring 2016, ITU moved to a newer, more improved version of EMS. During this migration phase, some losses in the integrity of the data were observed. As a measure of assurance, the data used in producing this report has been verified against source data contained in ITU's Enterprise Resource Planning (ERP) system, Jenzabar EX, where required. As a result of these reports, consistent improvements are being made in EMS.

7.0 Student Enrollment in Core and Selected Elective Courses

- The Business Department at ITU offers core courses in multiple sections; Weekday, Weekend and Online. Elective courses are predominantly offered in weekend and online formats.
- Online courses (core and selected electives), although popular are seeing a somewhat controlled growth in demand. At ITU, students are only allowed one (1) online course per trimester. Although initially, enrollment in online courses seemed to be at its highest in Spring 2017, this is slowly declining due to either lower enrollment in Summer 2017 as compared to previous terms or student preference for in person classes than online sessions.
- Weekend courses (core and selected electives) are the most popular offerings within the Business Department. These courses are spread over one (1) weekend each month for three (3) months. Students, who are working as well as pursuing a degree in the Business Department at ITU prefer the weekend classes for the interactions with esteemed faculty. However, some attention needs to be directed at the declining trend of weekend courses between Fall 2016 and Summer 2017. This may be explained due to the general drop in enrollment at ITU.
- Weekday sessions have not been offered for the core courses and for the selected electives in Summer 2016, Spring 2017 and Summer 2017. Spring 2016 had the highest enrollment in the core courses offered during the weekday. However, Spring 2016 enrollment was also quite stellar. In general, weekday offerings of courses are not too popular with students who may also be working.
- These trends are further analyzed by core and selected elective courses in the sections below.



7.1 Student Enrollment in Core Courses

- As previously mentioned, the four (4) core courses; MGT 503 (required to be taken in the first trimester), FIN 534, MKT 551 and MIS 527 are administered in multiple sections each term. The table below presents the various sections offered for each core course by term. The “Y” indicates that the course was offered in a particular section for a particular term.

Course Code	Section	Fall 2015	Spring 2016	Summer 2016	Fall 2016	Spring 2017	Summer 2017
FIN 534	Weekday		Y		Y		
	Weekend	Y		Y	Y	Y	Y
MGT 503	Online	Y	Y	Y	Y	Y	Y
	Weekday		Y				
	Weekend	Y	Y	Y	Y	Y	Y
MIS 527	Weekday	Y					
	Weekend		Y	Y	Y	Y	Y
MKT 551	Online	Y		Y	Y	Y	Y
	Weekend		Y	Y	Y	Y	Y

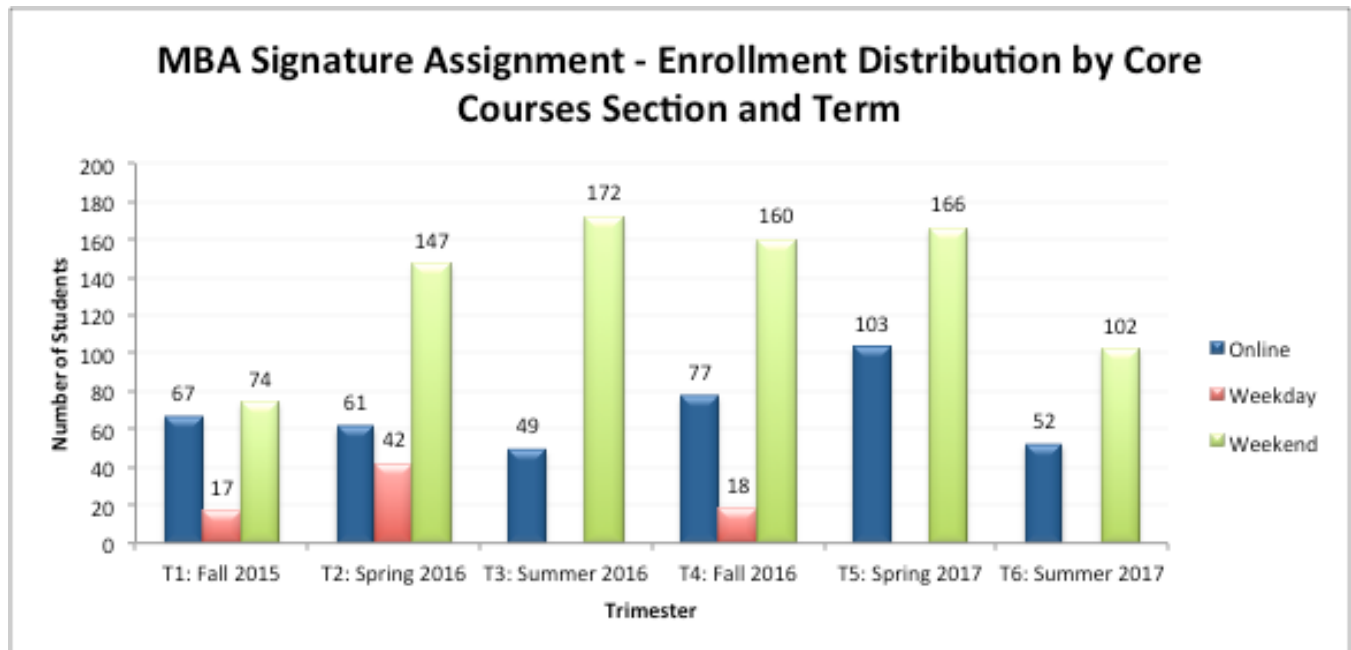
- We also include a table outlining the available capacity correlated with enrollment for the core courses by section. It may be noted that in each offering, there are always available seats for students who wish to enroll in these sections. In only a few instances, are the classes filled to capacity.

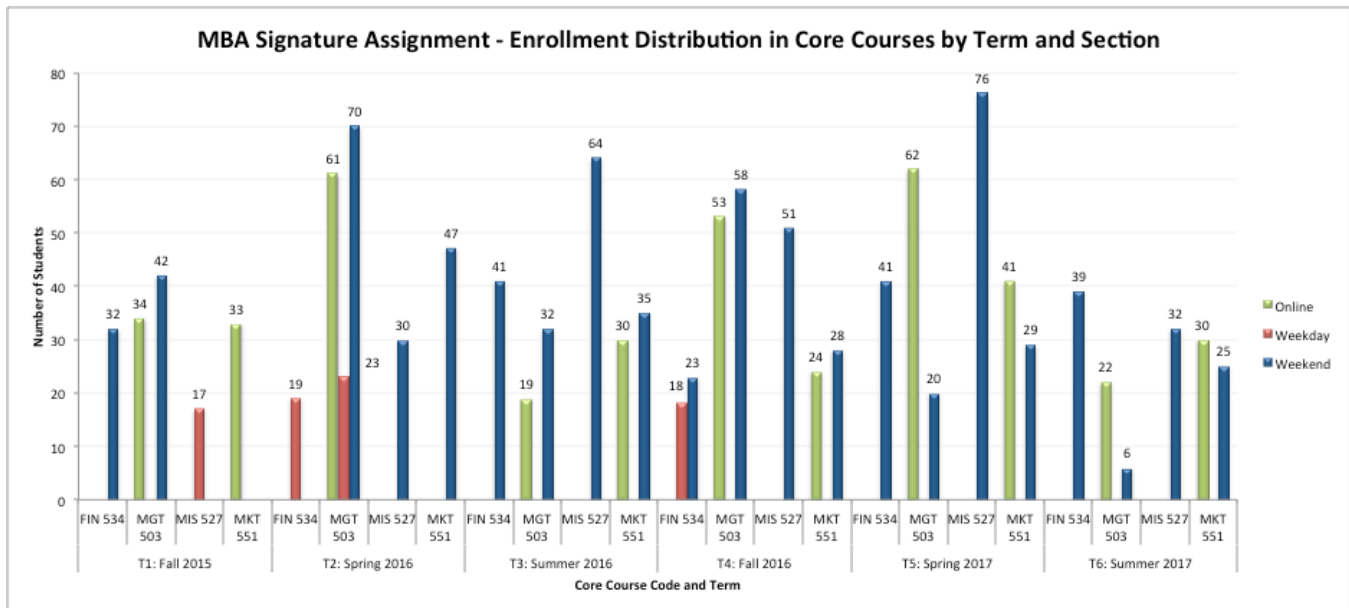
Course	Section	Fall 2015		Spring 2016		Summer 2016		Fall 2016		Spring 2017		Summer 2017	
		Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment	Capacity	Enrollment
FIN 534	Weekday	0	0	45	21	0	0	25	18	0	0	0	0
	Weekend	35	32	0	0	48	42	25	24	45	41	40	39
MGT 503	Online	35	35	71	65	40	19	65	56	70	63	30	22
	Weekday	0	0	35	24	35	14	0	0	0	0	0	0
	Weekend	45	44	72	71	70	34	65	58	70	21	30	6
MIS 527	Weekday	35	18	0	0	0	0	0	0	0	0	0	0
	Weekend	0	0	30	30	78	66	70	56	80	76	60	32
MKT 551	Online	35	34	0	0	40	30	31	27	41	41	30	30
	Weekend	0	0	48	48	40	36	30	29	40	29	30	26

- As was previously mentioned, for the core courses, online and weekend sections are the most popular choices. Moreover, it must be remembered that students are required to complete all four (4) core courses in order to graduate. Weekend sections, generally, have a higher enrollment than the other two (2) sections, indicating that students prefer to interact with their peers and faculty within the classroom setting than learn online. In addition, students also travel to ITU from other states or from further than a fifty (50) mile radius. This makes it hard for such students to attend the weekday sessions, which typically take place later in the evening. Further, it also must be remembered that students are only allowed one (1) online course per term evidencing the higher number of students preferring the weekend sessions to the weekday and online sessions.
- There seems to be some variability in the enrollment for online courses. While, in general, enrollment at ITU seems to be on a declining trend, the variability in enrollment for the online sections is concerning. It is recommended that course quality

and quality of instruction be carefully monitored to ensure that this isn't a reason for the variability in enrollment. For this reason, ITU's Business Department is embarking on a project to improve quality outcomes for students in the online courses.

- There is a decline in enrollment in weekend offerings of core courses between Spring 2017 and Summer 2017. This, however, may be explained by the students taking the summer term off for vacations or other personal reasons.
- Among the core courses, MGT 503 (Organizational Leadership Theories) and MIS 527 (Technology and Operations Management: Creating Value) seem to see maximum enrollment. Students from other degree programs at ITU are also able to enroll in courses from the Business department as electives; explaining the popularity for these courses.



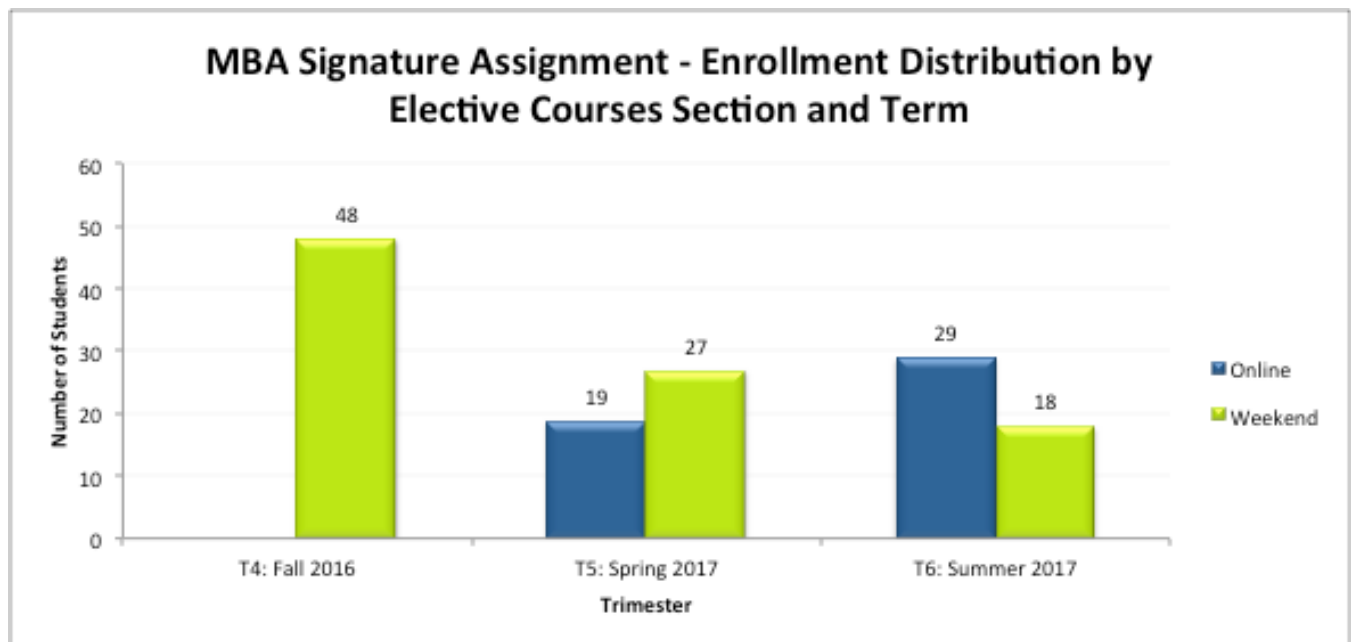


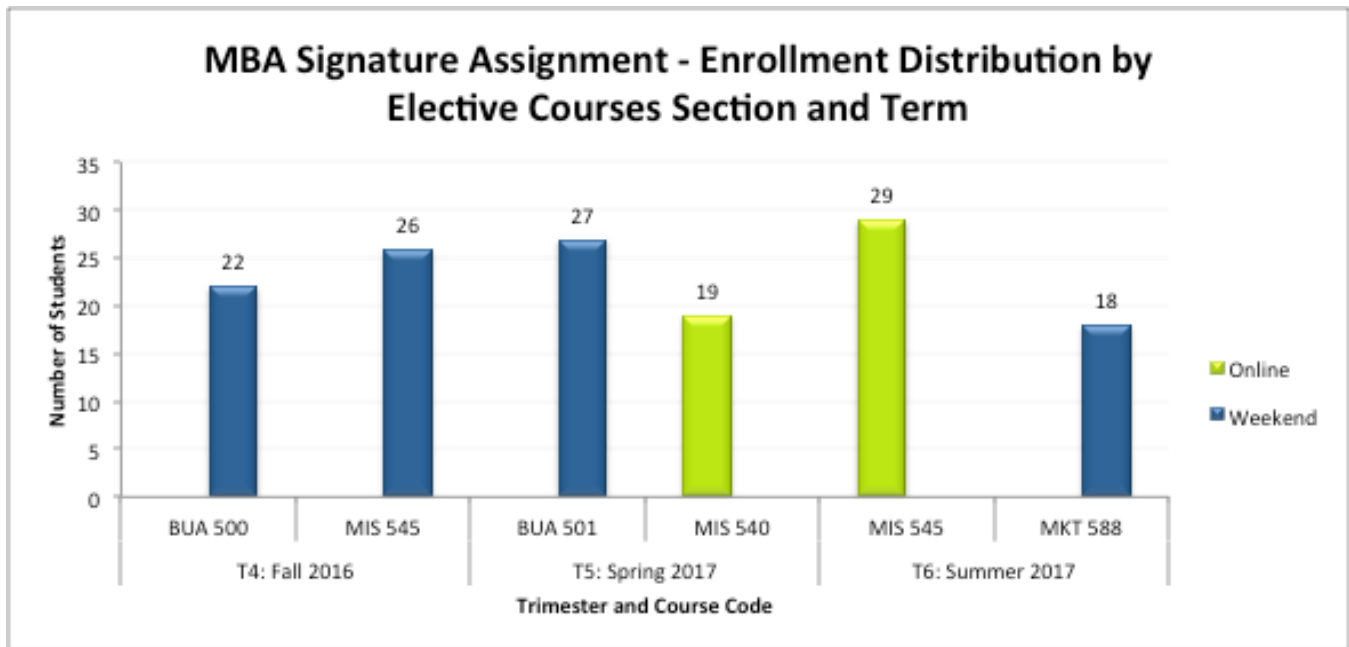
7.2 Student Enrollment in Elective Courses

- In addition to the four (4) core courses and one (1) capstone course, students are also required to take certain elective courses. These electives can be from within the business department or one (1) course from other departments. For this analysis, we have chosen electives from within the business department. Some electives may be recommended courses for other business concentrations, such as Business Analytics (BUA). The table below represents the various sections, by term offered for each elective course. Most elective courses are offered in weekend and online sections due to student demand for these classes. The “Y” indicates that the course was offered in a particular section for a particular term.

Course Code	Section	Fall 2016	Spring 2017	Summer 2017
BUA 500	Weekend	Y		
BUA 501	Weekend		Y	
MIS 540	Online		Y	
MIS 545	Online			Y
	Weekend	Y		
MKT 588	Weekend			Y

- On first impressions, over the three (3) terms surveyed, it may be noted that enrollment in these terms for the elective courses is reasonably consistent (48 students in Fall 2016, 46 in Spring 2017 and 47 students in Summer 2017). This indicates that these elective courses are popular choices among students.
- From the trends of enrollment, no inferences may be drawn about whether the online sessions are more popular or the weekend sessions. This is mainly because, in any given term, only one (1) session of the elective courses are offered.
- Amongst the courses surveyed over three (3) terms, courses with the highest enrollment are Business Analytics (22), Quantitative Analytics (27), and Business Intelligence and Data Mining (29). This indicates the areas of career aspirations of our students. Interestingly, these courses comprise recommended courses for the newly created Business Analytics concentration in the MBA degree program.





8.0 Student Performance by Course and Trimester

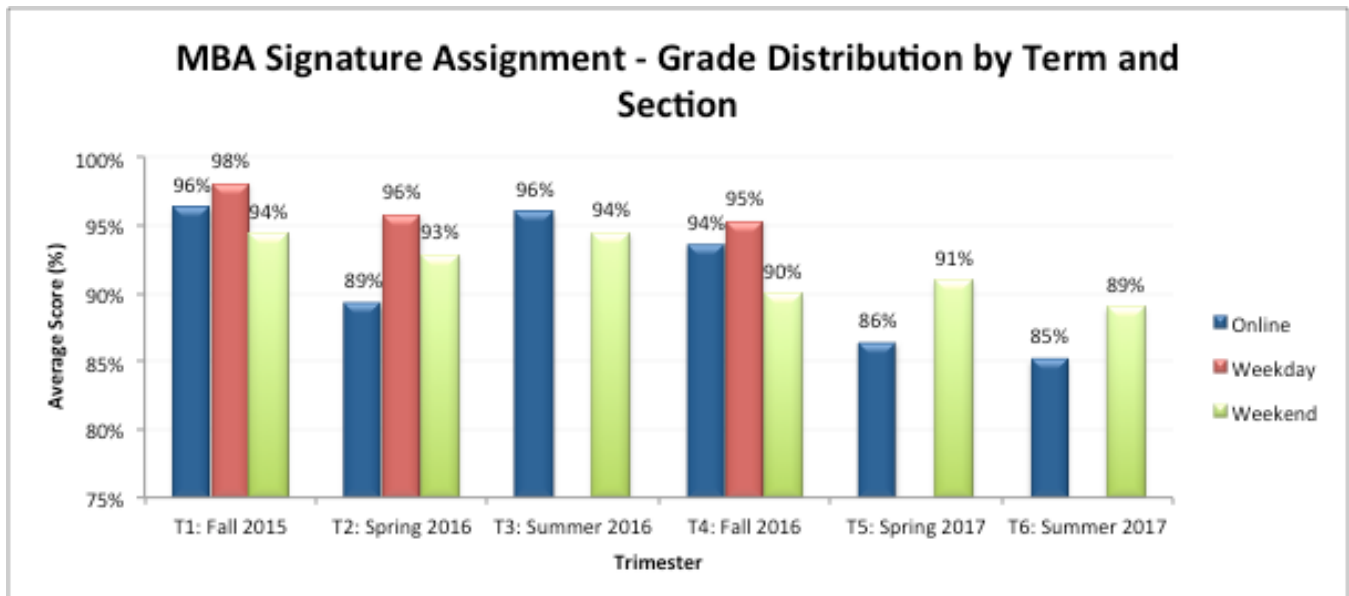
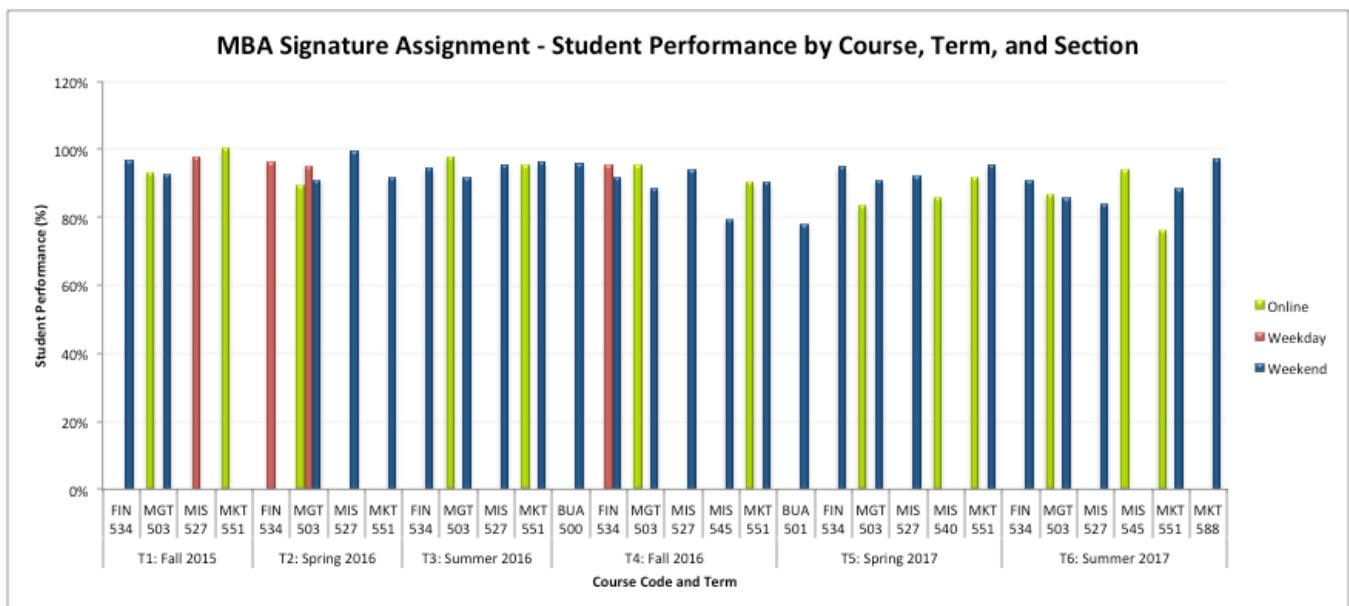
- Overall, across the board, regardless of core courses or elective courses, students perform very well. Across terms, sections and courses, average student performance is over 90%, with some variation across courses and sections.
- The highest average scores were noted in the weekday sections (96% average). While this is great news, it must be remembered that the enrollment in the weekday sections as mentioned previously is extremely low. Interestingly also, none of the students failed in the weekday sections.
- There also seems to be some propensity for certain professors (see MKT 551) to give consistently high grades to all students in the course. A separate Quality Assurance process analysis is underway to detect the instances of such high scores and to engage faculty to limit such propensity. This would mean that only students who truly deserved the high scores would get it.
- Generally sections and courses with higher enrollment see slightly lower scores than those with lower enrollment. When enrollment is higher, the variability between students is also higher. Some students may perform extremely well, others at an average level and yet others may even fail the signature assignments. This leads to the average score in the course being dragged downwards. A better indicator of

performance is a learning outcomes assessment. This initiative is also underway as a separate exercise.

- The table below and the graphs following outline the average score by total number students by course, section and term.

Term	Course Code	Online		Weekday		Weekend	
		No. of Students	Average Score (%)	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015	FIN 534					32	97%
	MGT 503	34	93%			42	93%
	MIS 527			17	98%		
	MKT 551	33	100%				
Spring 2016	FIN 534			19	96%		
	MGT 503	61	89%	23	95%	70	91%
	MIS 527					30	99%
	MKT 551					47	92%
Summer 2016	FIN 534					41	94%
	MGT 503	19	98%	18	95%	32	92%
	MIS 527					64	95%
	MKT 551	30	95%			35	96%
Fall 2016	BUA 500					22	95%
	FIN 534					23	91%
	MGT 503	53	95%			58	89%
	MIS 527					51	94%
	MIS 545					26	79%
	MKT 551	24	90%			28	90%
Spring 2017	BUA 501					27	78%
	FIN 534					41	95%
	MGT 503	62	83%			20	91%
	MIS 527					76	92%
	MIS 540	19	86%				

	MKT 551	41	91%			29	95%
Summer 2017	FIN 534					39	90%
	MGT 503	22	87%			6	86%
	MIS 527					32	84%
	MIS 545	29	94%				
	MKT 551	30	76%			25	88%
	MKT 588					18	97%



8.1 Student Performance by Core Course

- Overall, across the board, regardless of core courses or elective courses, students perform very well. Across terms, sections and courses, average student performance is over 90%, with some variation across courses and sections.
- The table below replicates the number of students enrolled in the Business Department core courses and their average performance on the signature assignments by term.
- In general, the lower the number of students enrolled in the core courses, the better the average performance. However, MKT 551 is one course where students consistently score a high grade on their Signature Assignments. As an example, the average performance for 33 students enrolled in this course in Fall 2015 was 100%. This would mean that all 33 students would have received 100% on the signature assignments. This seems a little unrealistic. It is therefore, recommended that such instances of perfect scores and/or low scores be monitored centrally for quality assurance.

Term	Course Code	Online		Weekday		Weekend	
		No. of Students	Average Score (%)	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015	FIN 534					32	97%
	MGT 503	34	93%			42	93%
	MIS 527			17	98%		
	MKT 551	33	100%				
Spring 2016	FIN 534			19	96%		
	MGT 503	61	89%	23	95%	70	91%
	MIS 527					30	99%
	MKT 551					47	92%
Summer 2016	FIN 534					41	94%
	MGT 503	19	98%	18	95%	32	92%
	MIS 527					64	95%
	MKT 551	30	95%			35	96%
Fall 2016	FIN 534			18	95%	23	91%
	MGT 503	53	95%			58	89%

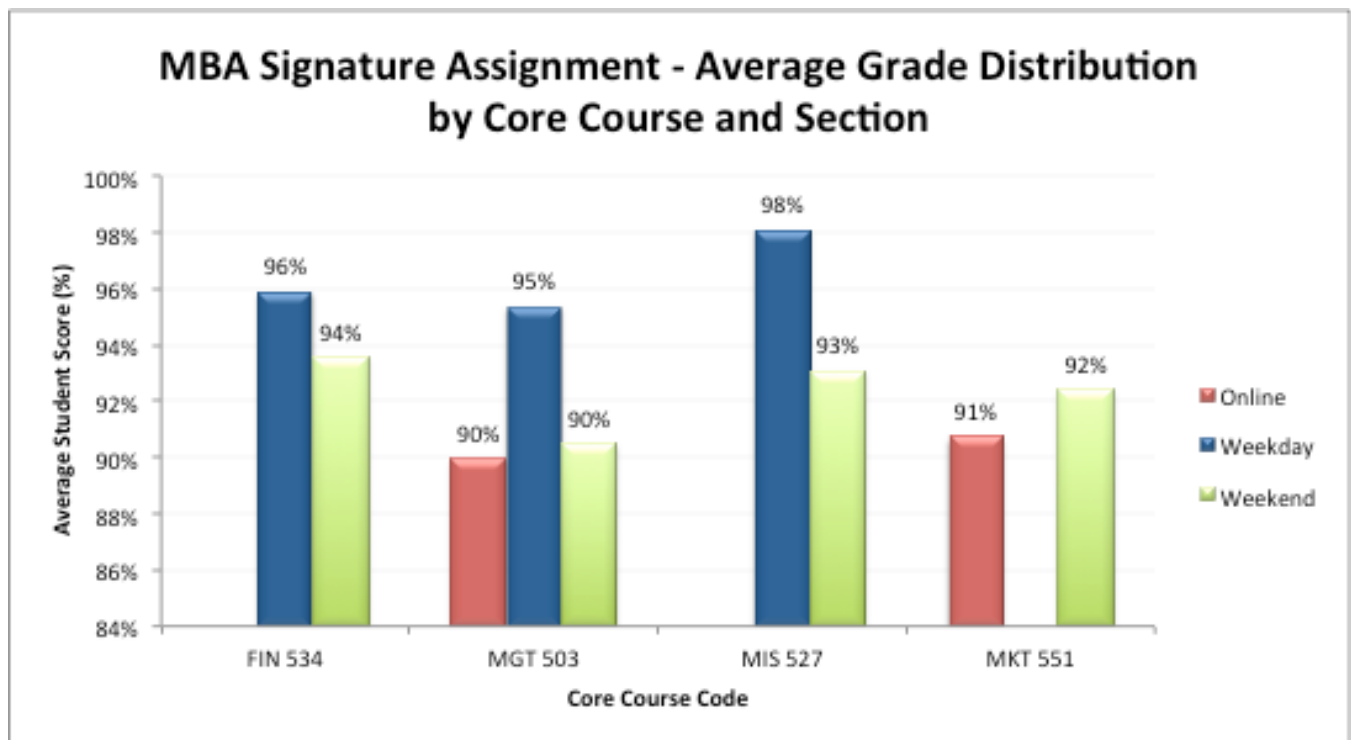
	MIS 527					51	94%
	MKT 551	24	90%			28	90%
Spring 2017	FIN 534					41	95%
	MGT 503	62	83%			20	91%
	MIS 527					76	92%
	MKT 551	41	91%			29	95%
Summer 2017	FIN 534					39	90%
	MGT 503	22	87%			6	86%
	MIS 527					32	84%
	MKT 551	30	76%			25	88%

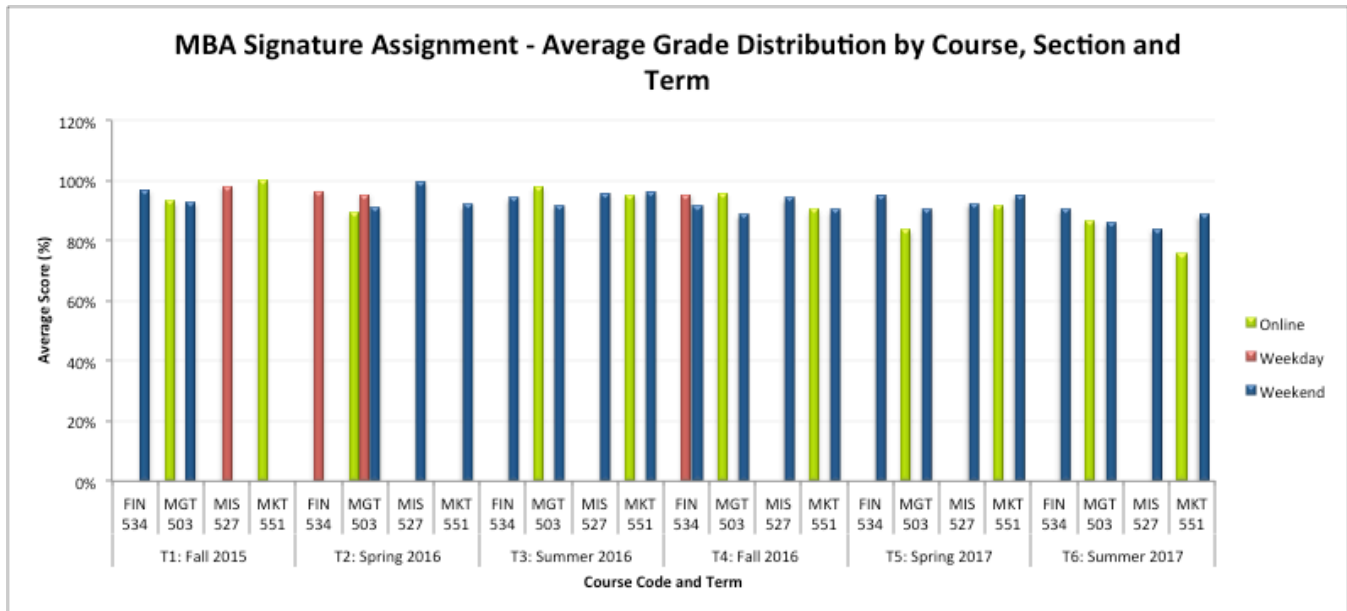
- In comparing the various offerings of the core courses for grade distribution, it may be noted that weekday courses have the lowest enrollment and also the highest grades.
- Online sessions of the core courses are quite popular amongst students and enjoy a healthy enrollment. Average student performance is also reasonably high and this is consistently so. However, some attention needs to be given to the recent trend of declining scores. Between Spring 2017 and Summer 2017, the average performance on the signature assignment has dropped by around 7% each term compared to the term prior. This declining performance may indicate that students may not be taking the signature assignment seriously, thereby dragging down an otherwise stellar class performance. In addition, it may indicate that students may need more training to understand the value of such signature assignments. In some courses, signature assignments seem to be treated as an avenue for future research that may culminate in a fantastic thesis or project for the students' capstone courses.
- Weekend sessions, typically record the highest student enrollment as previously explained. While average student performance on the core courses offered in the weekend sessions is consistently high from term to term, a slight drop has been noted in student performance between Spring 2017 and Summer 2017. Again, it must be noted that a few students who do not submit their signature assignments, and/or automatically get a "zero" score on these assignments have the potential to drag the average performance downwards.
- The table below outlines the number of students by term and section earning 50% or lower in the signature assignments in the core courses. The instances of these have

increased significantly from Fall 2016 onwards necessitating the need for more emphasis on the signature assignments.

Score Range (in %)	Term	Online (no. of students)	Weekend (no. of students)
0%	Spring 2017	3	3
	Summer 2017	7	4
10%	Fall 2016	0	1
40%	Spring 2016	1	0
	Spring 2017	0	2

- The graphs following illustrate the above from varying vantage points.





8.2 Student Performance by Elective Course

- The comparison of elective courses is a new feature on this report as compared to its previous release. To maintain the integrity of the analyses present herein, we analyze some popular elective courses. The choice from among popular elective courses is random. Two elective courses have been chosen in each trimester from Fall 2016 onwards. These courses are:
 - MIS 545: Data Mining and Business Intelligence – Dr. Ramesh Konda (Fall 2016, Summer 2017)
 - BUA 500: Principles of Business Analytics – Dr. Jahan Ghofraniha (Fall 2016)
 - BUA 501: Quantitative Analysis – Dr. Jahan Ghofraniha (Spring 2017)
 - MIS 540: Information Resource Management – Dr. Jimmie Flores (Spring 2017)
 - MKT 588: Consumer Behavior – Prof. Duane Brooks (Summer 2017)
- The table below replicates the number of students enrolled in the Business Department elective courses and their average performance on the signature assignments by term.
- Previously, we mentioned a general observation where a lower enrollment in the courses signified a higher average score on the signature assignment. The elective courses are a little more variable in terms of correlating enrollment numbers with average performance.

- It was noted that in courses that potentially required more in depth technical skills such as Quantitative Analysis (BUA 501) and Business Intelligence and Data Mining (MIS 545), students recorded lower average scores; at the 78% mark.
- Furthermore, there was some variation between the online and weekend offering of MIS 545 (Fall 2016 and Summer 2017). The number of students in both offerings is reasonably similar. Also, allowing for the variation in student intake from term to term, it must be noted that faculty teaching the course was different in each term. Dr. Flores taught the online course and Dr. Konda taught the weekend offering. Students in the online course had a much higher average score (94%) than students in the weekend course (79%). It is recommended that this variation be investigated further for consistency in teaching methodology, grading and ease of signature assignments.
- Consumer Behavior (MKT 588) is taught by the same professor who also teaches Competitive Marketing Strategies (MKT 551), a core course within the Business Department at ITU. It is interesting to note that the average signature assignment grades for students taught by this faculty member is consistently above 90%; sometimes, even above 95%. We recommend an internal audit process for students in this course to ascertain whether the students' submissions are genuinely of such high caliber or not.

The Department Chair, in following up on the comments from this report, spoke with professors who had consistently scored students with high grades on the signature assignment. The responses received from the various members of faculty are included below.

Professor 1: "Students work in teams for the signature assignment, and they receive grade based on team submission of project and individual contribution based on team member evaluations."

All projects are graded according to project rubric, and I collect evaluation feedback to be used for individual grade changes."

In accordance with rubric, majority of projects submitted have been "A" work. Based on project requirements, which is very detailed and based on a clear outline provided at the beginning of the term, students have successfully completed the signature assignment".

Professor 2: "They are work of research par excellence! These projects were well executed... This was an exceptionally gifted class who worked well as a group, with

awesome teamwork and brilliant cooperation. They were stellar students who excelled and provided well-written business plans.... For the Capstone Summer class, these students met my standard of performance. No one was given any undeserved credit or advantages. As a matter of fact, the workload was based on 15 credit hours per week for the duration of the trimester. These students were exceptionally well qualified in carrying out their duties as can be seen by the grade reports and work..."

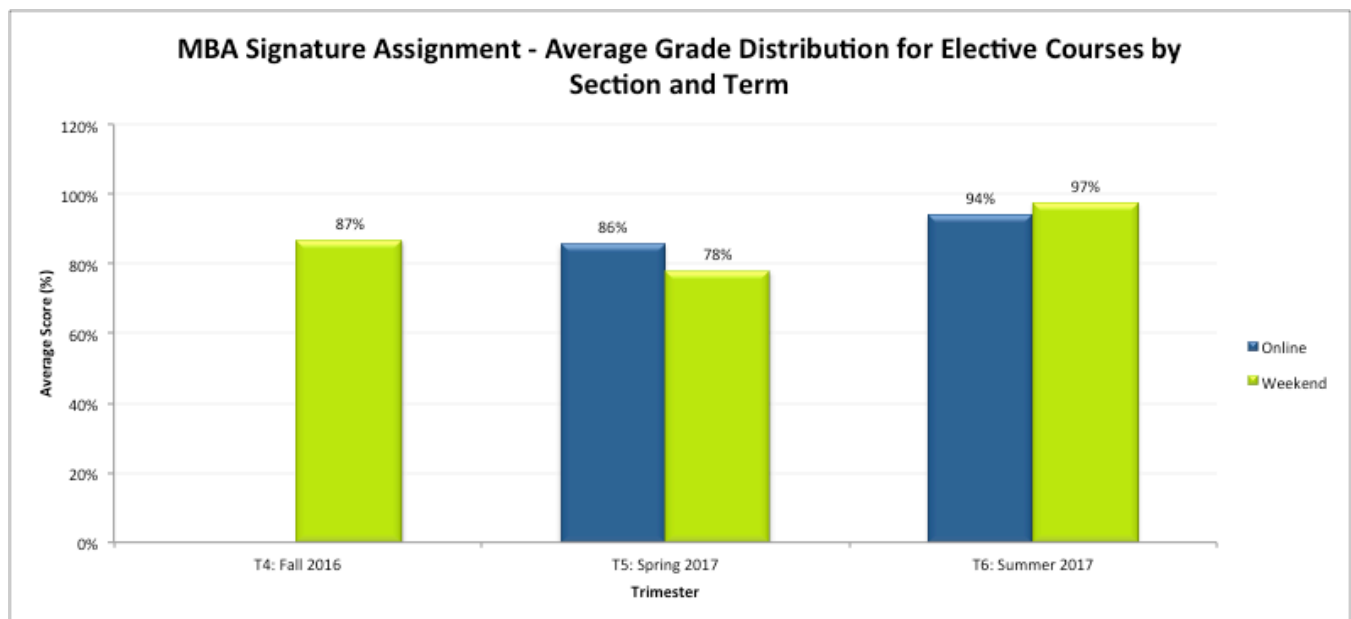
- Lastly, Dr. Ghofraniha teaches both Principles of Business Analytics (BUA 500) and Quantitative Analysis (BUA 501). While BUA 500 is slightly more theoretical in nature, BUA 501 involves quantitative analysis and statistical methods, which is more technically oriented. It is interesting to note that, on average, students seem to perform better on the theoretical topics than on the technical topics as far as signature assignments are concerned. This is a typical trend in Business courses. The professor comments that business students need not necessarily have engineering backgrounds. However, this technical knowledge, in conjunction with their business acumen, enables them to be invaluable in their chosen fields.
- In digging deeper into student performance on BUA 501, it was noted that the highest score was 90% and the lowest score was 38%. The variation in these scores is what caused the average to be dragged downwards. On BUA 500, it was noted that all students except one (1) were awarded a perfect score of 100%. As was previously recommended, an internal audit process may be required for students in this course to ascertain whether the students' submissions are genuinely of such high caliber or not.

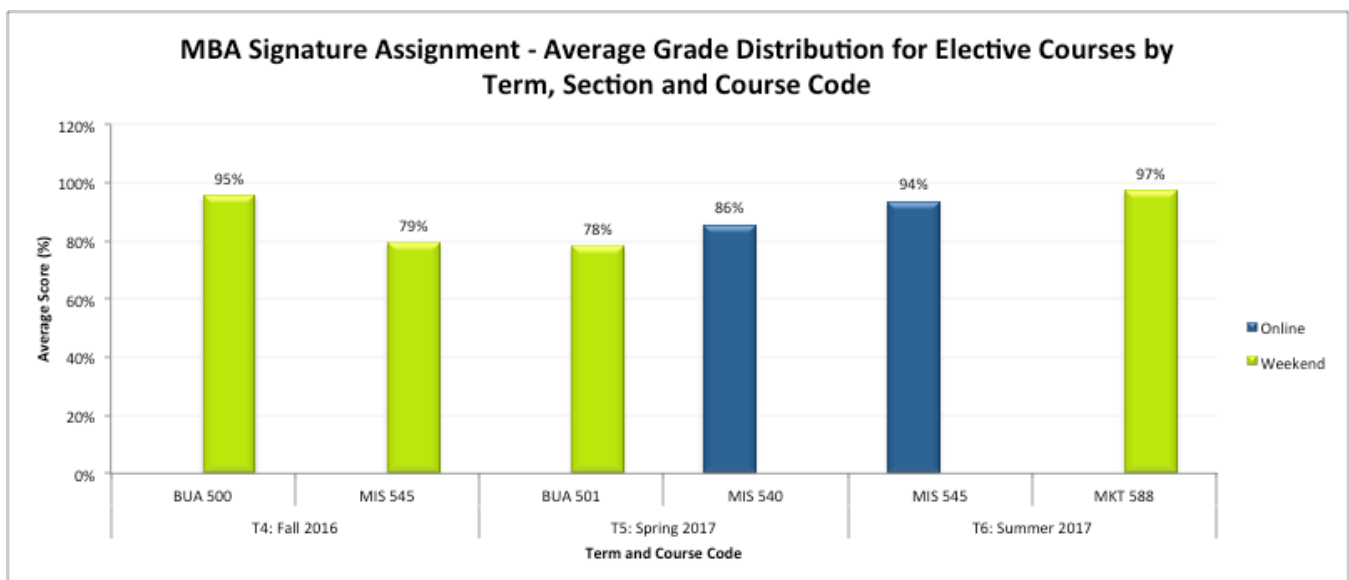
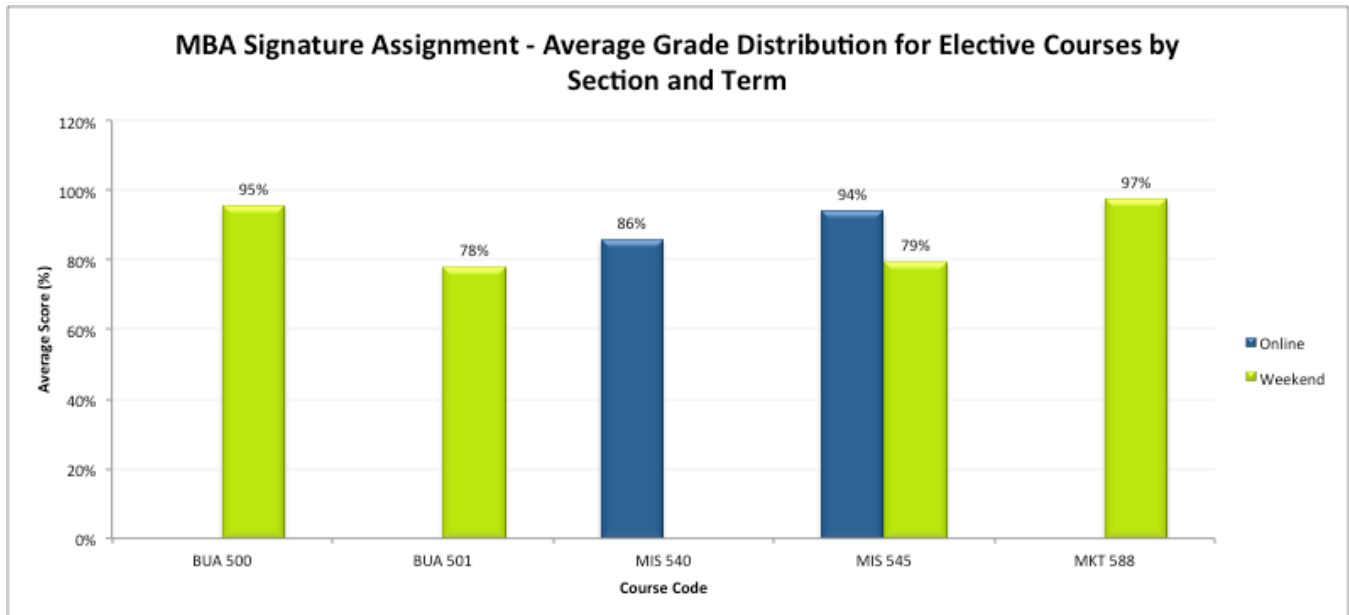
Term	Course Code	Online		Weekend	
		No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2016	BUA 500			22	95%
	MIS 545			26	79%
Spring 2017	BUA 501			27	78%
	MIS 540	19	86%		
Summer 2017	MIS 545	29	94%		
	MKT 588			18	97%

- The table below outlines the number of students by term and section earning 50% or lower in the signature assignments in the elective courses. These instances of low scores generally drag down what could otherwise be a stellar class performance.

Score Range (in %)	Term	Online (no. of students)	Weekend (no. of students)
0%	Fall 2016	0	4 [BUA 500: 1; MIS 545: 3]
	Spring 2017	2 [MIS 540]	0
38%	Spring 2017	0	2 [BUA 501]
45%	Spring 2017	0	1 [BUA 501]

- The graphs following illustrate the above analysis from varying vantage points.





9.0 Signature Assignment results by Core Course

The sections that follow will analyze the signature assignment results by course, faculty and by trimester. The aim of analysis at this level is to identify areas of irregularity, and/or improvements in the way signature assignments are administered in each class.

Please note that only an analysis for the core courses have been provided, due to the richness of data available. As opposed to elective courses, core courses are required to be taken by all students enrolled in the Business Department. As a result, these are offered

every trimester in multiple sections. For this reason, we analyze each core course individually to assess student learning over multiple terms.

Similar analyses will be presented for the elective courses as we analyze these in future terms.

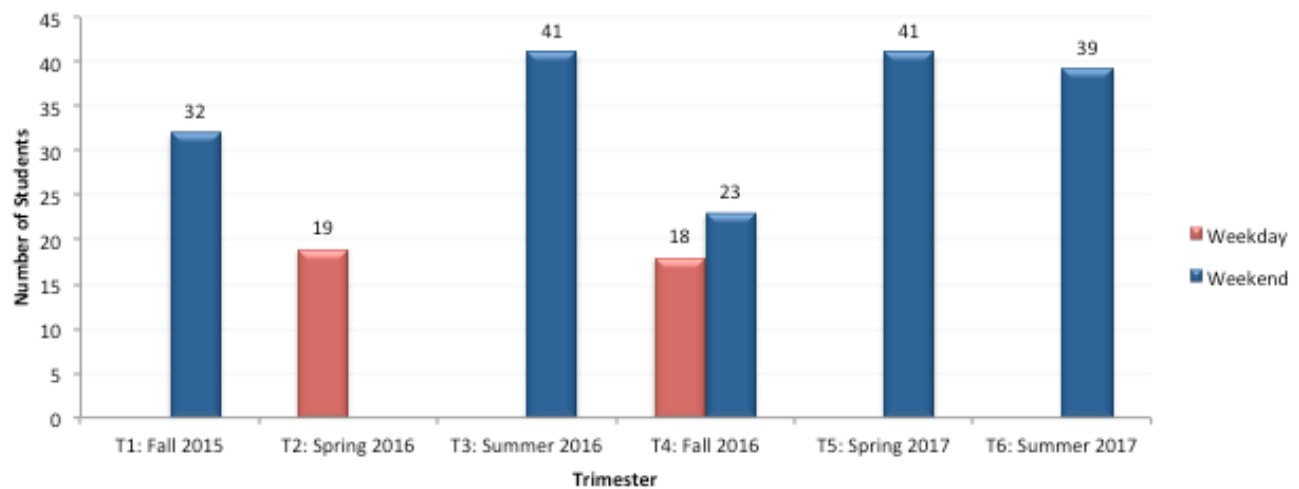
9.1 Signature Assignment Results Analysis – FIN 534

- Financial and Economic Analysis (FIN 534) is a core course in the MBA degree programs administered by the Business Department. This course, over time, has been offered in multiple sections each term (depending on enrollment). In the terms we analyzed (Fall 2015 to Summer 2017), FIN 534 has been offered in Weekday and Weekend formats. Dr. George Guim teaches both sections of this course for the period analyzed.
- This course has consistently high average performance by students on the signature assignments term on term. We also dug further to identify if any students received grades below 50% on the signature assignment. We found only one instance of this in Fall 2016 (Weekend section). Here, one (1) student received a score of 10% on their signature assignment. It is recommended that an internal audit be instituted to identify if student submissions on the signature assignment is truly of such a high caliber.
- Some volatility has been noted in students' average performance on the weekend courses. Enrollment has been relatively consistent. Yet, student performance on signature assignments in Fall 2016 and Summer 2017 is lower than other terms. This may be explained by some instances of low scores earned by students, serving to drag down the average performance of the class. It is recommended that the importance of these signature assignments be emphasized to students in every course, so that they present their best works.
- The graphs below represent the above analysis.

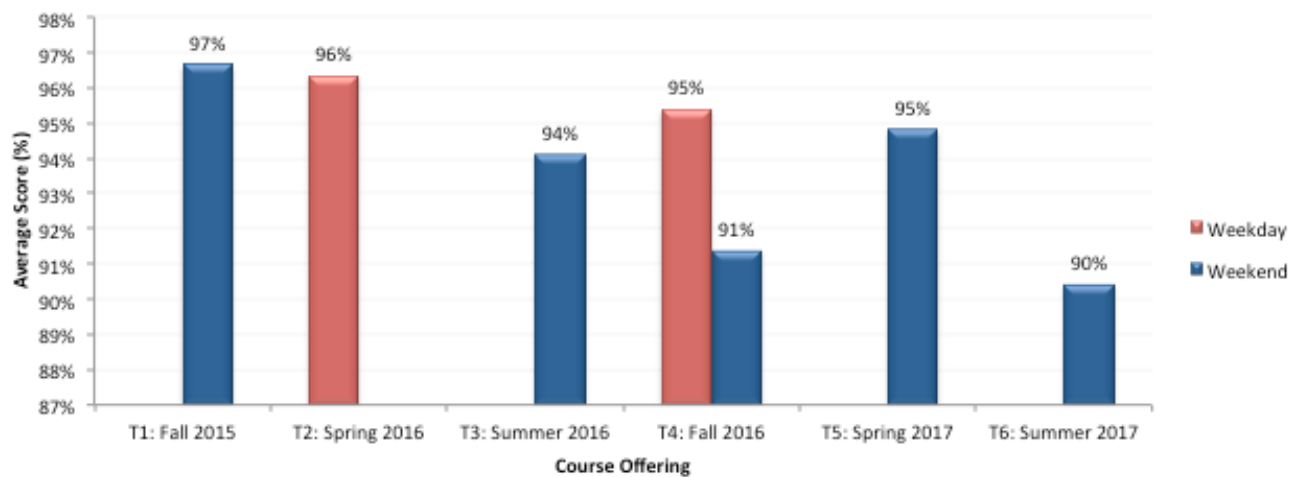
Term	Weekday		Weekend	
	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015			32	97%
Spring 2016	19	96%		

Summer 2016			41	94%
Fall 2016	18	95%	23	91%
Spring 2017			41	95%
Summer 2017			39	90%

MBA Signature Assignments - FIN 534 Enrollment Distribution by Section and Term



MBA Signature Assignments - FIN 534 Grade Distribution by Section and Term



9.2 Signature Assignment Results Analysis –MGT 503

- Organizational Leadership Theories (MGT 503) is a core course in the MBA degree programs administered by the Business Department. Since Spring 2016, students admitted into the MBA programs are required to enroll in this course in their very first term at ITU. The various sections of this course are used to administer the Peregrine Inbound Assessment, which is an externally administered competency based exam. The Peregrine Assessments Result report is available separately.
- This course, over time, has been offered in multiple sections each term (depending on enrollment). In the terms we analyzed (Fall 2015 to Summer 2017), MGT 503 has been offered in Online, Weekday and Weekend formats. Prof. Karen Haley Allen teaches the online sections of the course. Prof. Patricia Wiggin teaches the weekday and weekend sections. Dr. Nik Tehrani has taught the weekday offering of this course in Spring 2016. Prof. Carmelita Omran has taught the weekend offering of this course in Spring 2017. Prof. Wiggin is the designated course coordinator for all sections of this course to ensure consistency in dissemination of course content.
- Overall, no significant correlation has been noted in enrollment numbers and average scores earned on the Signature Assignment in this course. However, there is significant volatility in the numbers of students enrolled in the online sections of this course. This volatility may be attributed to the general state of enrollment in the Business Programs as well as ITU's policy of allowing students only one (1) online course per term. A similar volatility has also been noted in the weekend offerings of the course. It has come to our attention that, despite consistent messaging for students to enroll in MGT 503 in the first term, not everyone enrolled in the course in Summer 2017. This has been rectified for future terms by more interdepartmental collaboration and consistent messaging. The concern still remains as students from other degree programs at ITU are eligible to take this course as an elective course, but the course does not seem to be a popular option. Perhaps this indicates a need for better marketing for the course.
- Overall, this course sees a robust performance by students' term on term. The lowest average score noted was 83% (Spring 2017, Online) and the highest average score noted was 98% (Fall 2016, Online). In general, the online offering seems to record higher volatility in average scores than the weekend offerings. As previously mentioned, with the higher number of students in the online offerings, a few low scores or non-submissions of the signature assignments tend to drag down the overall average

class performance. Of concern, however, is the trend of overall declining scores from term to term. We also dug further to identify if any students received grades below 50% on the signature assignment. Interestingly, a higher incidence of such low scores was found in the online offerings of the course than the weekend or weekday offerings. The table below outlines this.

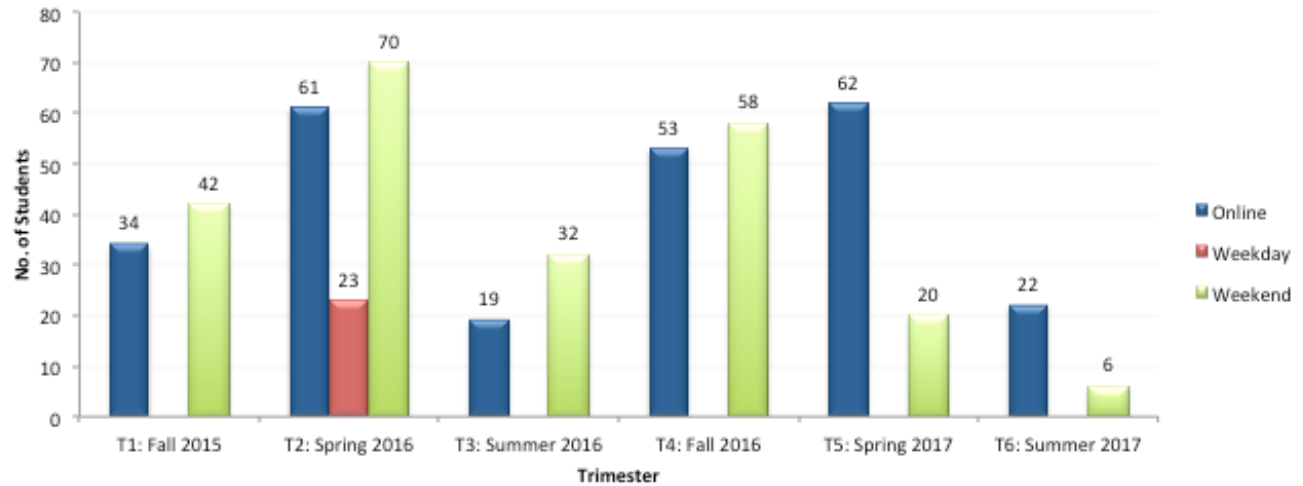
- While, every attempt has been made to standardize course content delivery across various professors and formats, it might be worthwhile to undertake a quality assurance exercise to ensure that all students in the various offerings of the course and teaching methodologies are graded consistently and fairly. It is also recommended that the importance of these signature assignments be emphasized to students in every section, so that they present their best works.

Score Range (in %)	Term	Online (no. of students)	Weekend (no. of students)
0%	Spring 2017	3	0
	Summer 2017	1	0
40%	Spring 2016	1	0
	Spring 2017	0	2

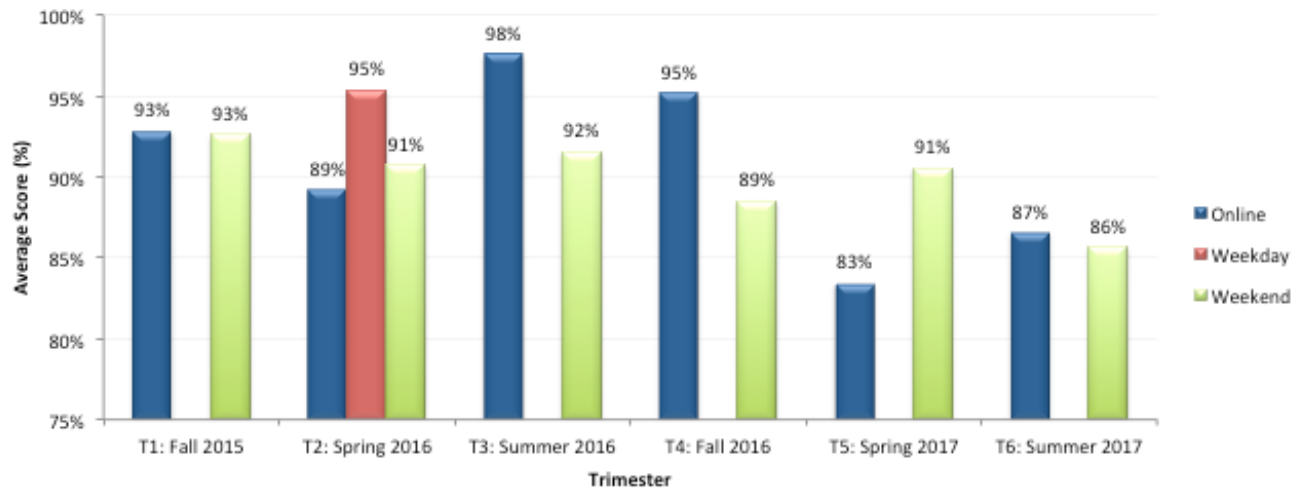
Term	Online		Weekday		Weekend	
	No. of Students	Average Score (%)	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015	34	93%			42	93%
Spring 2016	61	89%	23	95%	70	91%
Summer 2016	19	98%	18	95%	32	92%
Fall 2016	53	95%			58	89%
Spring 2017	62	83%			20	91%
Summer 2017	22	87%			6	86%

- The graphs below represent the above analysis.

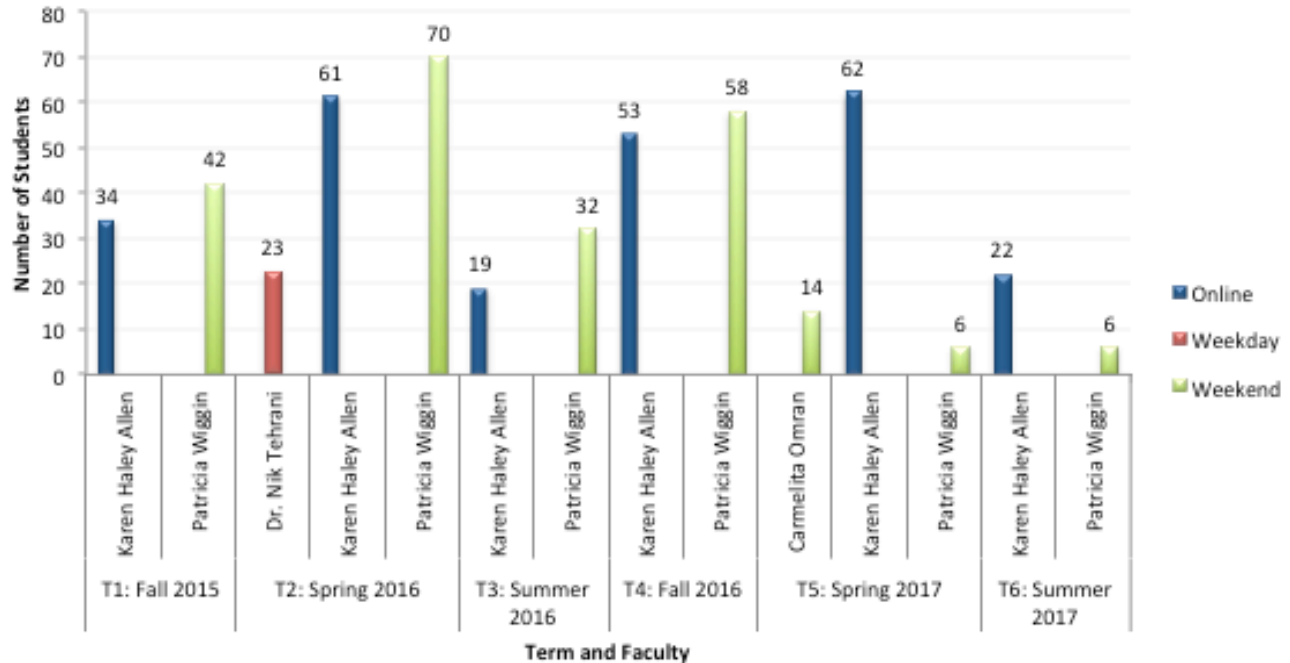
MBA Signature Assignment - Enrollment Distribution by Term, and Section for MGT 503



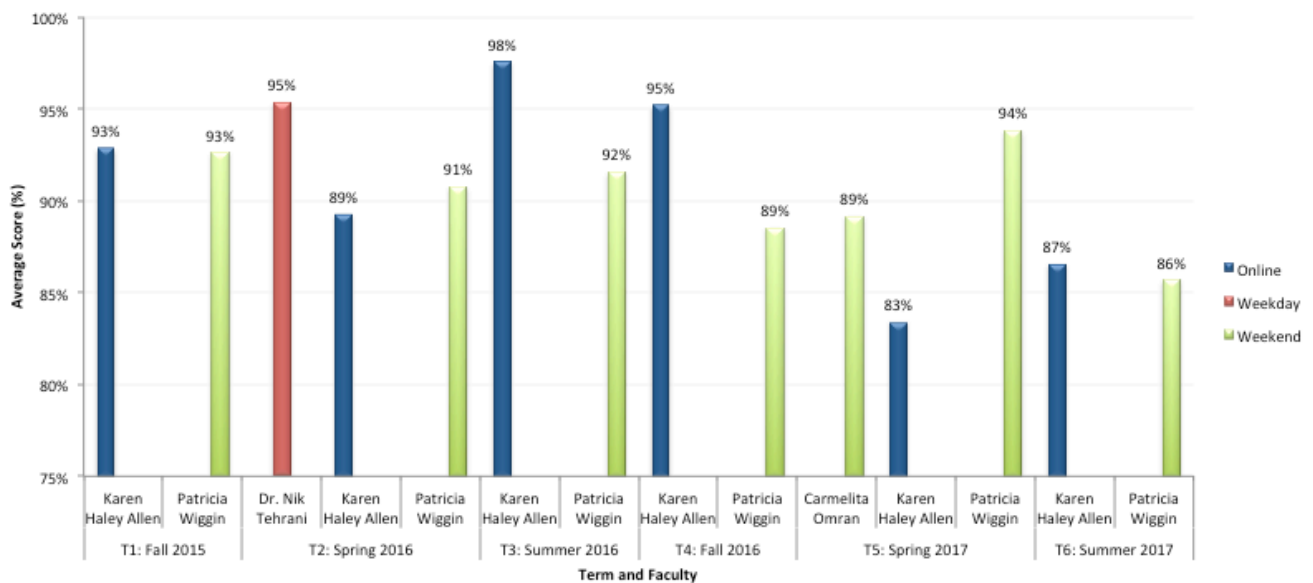
MBA Signature Assignment - Grade Distribution by Term, and Section for MGT 503



MBA Signature Assignment - MGT 503 Enrollment Distribution by Term, Section and Faculty



MBA Signature Assignment - MGT 503 Grade Distribution by Term and Offering



9.3 Signature Assignment Results Analysis – MIS 527

- Technology and Operations Management: Creating Value (MIS 527) is a core course in the MBA degree programs administered by the Business Department.
- This course has been offered on a weekday in Fall 2015 only. Subsequently, this course has been offered in the weekend sessions. It is noteworthy that this is a very popular course and is offered in multiple weekend sessions per term.
- Between Fall 2015 and Summer 2016, Dr. Rao Nemani taught this course. From Fall 2016 till Summer 2017, Dr. Wael Abdeljabbar has been teaching this course.
- This course has seen some volatility in terms of enrollment numbers. The highest recorded enrollment numbers were in Spring 2017 (76 students) and in Summer 2016 (62 students). However, in Summer 2017, enrollment has dropped (32 students) to less than half the numbers recorded in Spring 2017. As mentioned previously, it would be a worthwhile exercise to ascertain the number of students who were enrolled in the course from outside the Business Department. If this number has dropped significantly, it is recommended that course content, delivery, and, marketing of the course be analyzed to stimulate enrollment in this course.

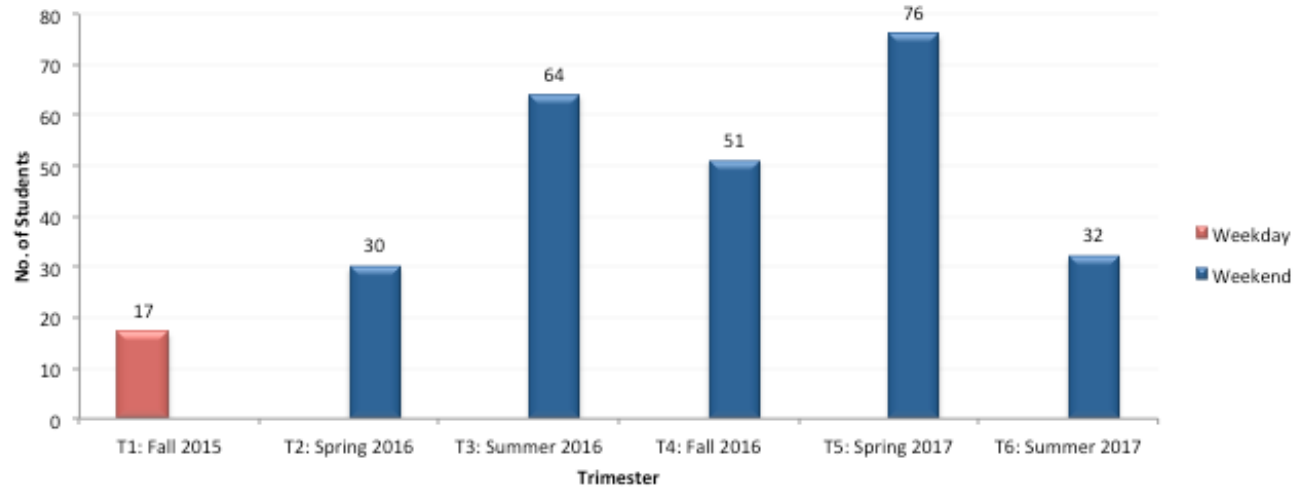
Term	Weekday		Weekend	
	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015	17	98%		
Spring 2016			30	99%
Summer 2016			64	95%
Fall 2016			51	94%
Spring 2017			76	92%
Summer 2017			32	84%

- This course sees higher enrollment in some terms than others because students in the Business Department are required to take this course prior to graduating. If the course is available as per their convenience, they may have already taken the course in prior terms.
- Overall, this course sees a robust performance by students' term on term. The lowest average score noted was 84% (Summer 2017) and the highest average score noted was 99% (Spring 2016). Grades are not as volatile as enrollment numbers. However, a declining trend has been noted from term to term in average scores earned by students in the signature assignment. This may be explained by the differing teaching methodologies espoused by the two (2) professors as previously mentioned.
- We also dug further to identify if any students received grades below 50% on the signature assignment. Interestingly, over the last two (2) terms, instances of a low score have become more prevalent. The table below outlines this

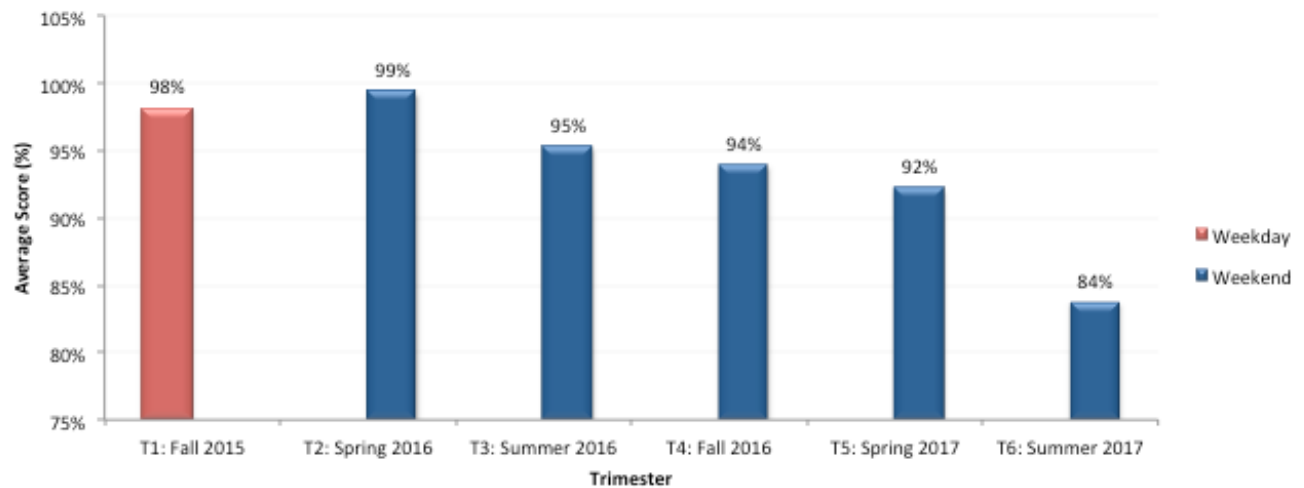
Score Range (in %)	Term	Weekend (no. of students)
0%	Spring 2017	3
	Summer 2017	2

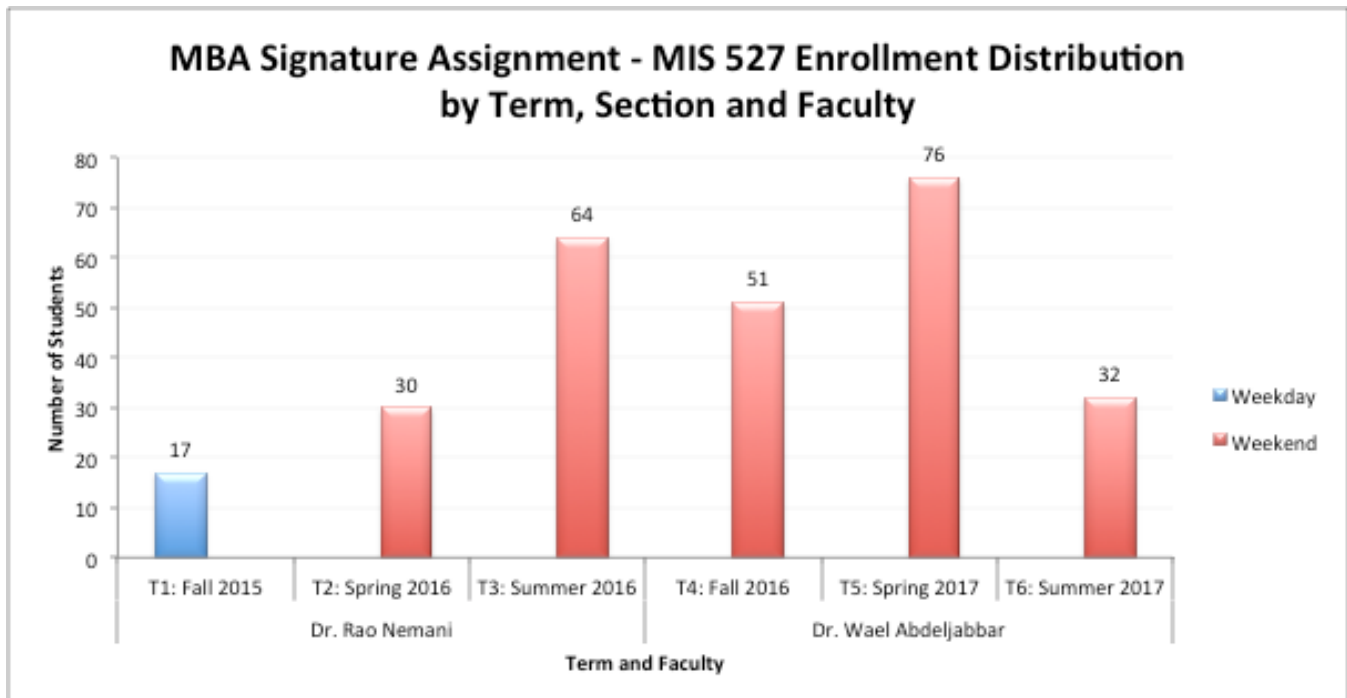
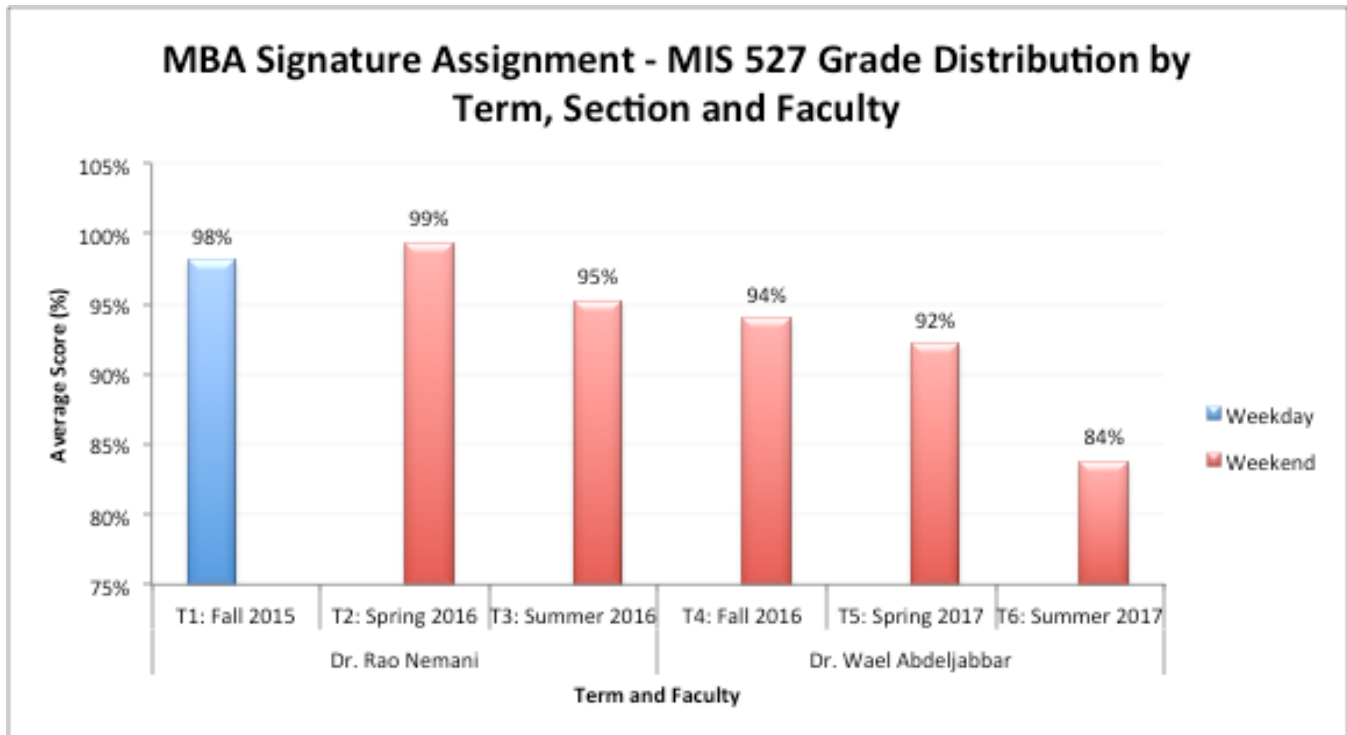
- Contrary to MGT 503, previously explained, that is offered in multiple sections, taught by different professors in the same term, different professors taught this course in different terms. Therefore, any differences are due entirely to teaching methodologies. It might be worthwhile to undertake a quality assurance exercise to ensure that students' submissions in the course are indeed of a high caliber. It is also recommended that the importance of these signature assignments be emphasized to students in every course, so that they present their best works.
- The graphs below represent the above analysis.

MBA Signature Assignment - Enrollment Distribution by Term, and Section for MIS 527



MBA Signature Assignment - Grade Distribution by Term, and Section for MIS 527





9.4 Signature Assignment Results Analysis – MKT 551

- Competitive Marketing Strategies (MKT 551) is a core course in the MBA degree programs administered by the Business Department.
- This course has been offered on a weekend schedule, online schedule, and in some trimesters, it has been offered in both sessions. One (1) professor, Prof. Duane Brooks, regardless of the format, teaches the course.
- This course has seen some volatility in terms of enrollment numbers. The highest recorded enrollment numbers were in Spring 2017 (70 students) and in Summer 2016 (65 students). However, in Summer 2017, enrollment has dropped significantly (55 students). As mentioned previously, it would be a worthwhile exercise to ascertain the number of students who were enrolled in the course from outside the Business Department. If this number has dropped significantly, it is recommended that course content, delivery, and, marketing of the course be analyzed to stimulate enrollment in this course.
- Overall, this course sees a robust performance by students' term on term. The lowest average score noted was 76% (Summer 2017, Online) and the highest average score noted was 100% (Fall 2015, Online). Unlike enrollment, grades in this course are not as volatile. However, a declining trend has been noted in average scores earned by students in the signature assignment in Summer 2017. As mentioned in previous sections, this might be due to a higher number of students not turning in their signature assignments and/or earning a very low score on the signature assignments.
- We also dug further to identify if any students received grades below 50% on the signature assignment. Interestingly, just in the past term, i.e. Summer 2017, a sudden surge in instances of a low score has been noted. The table below outlines this.

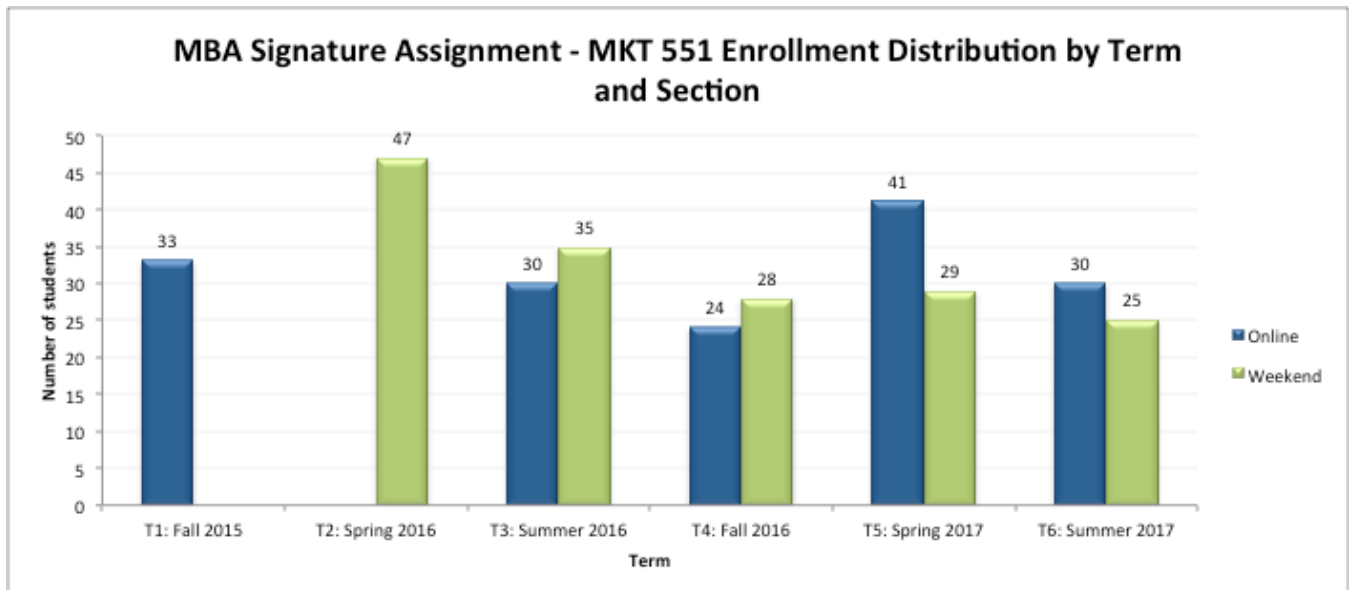
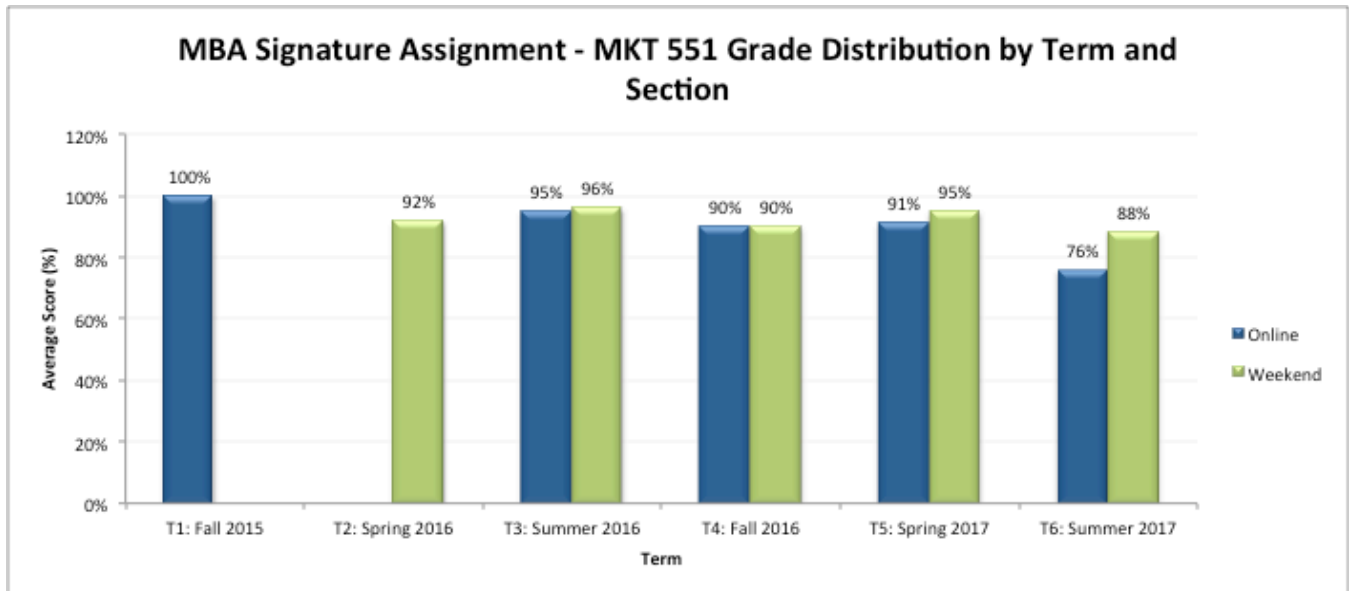
Score Range (in %)	Term	Online (no. of students)	Weekend (no. of students)
0%	Summer 2017	6	2

- In addition to the trend above, another interesting trend has revealed itself in this course. In certain terms, it seems like all students enrolled in the course have received the same score on the signature assignment. Examples of this trend are:
 - Fall 2015 (online) : all 33 students received a 100% on their signature assignment
 - Summer 2016 (online): all 30 students enrolled in the course received 95%

- Fall 2016 (online and weekend): all 52 students enrolled in the course in both sections received a 90% for their signature assignments
- Summer 2017 (Weekend): Barring the 2 students who received a “zero” on their signature assignments, all other students received 96% on their signature assignments.
- On further analysis, it seems unlikely that all students across various sections (and in some cases, different departments) will all perform at such a high level in the course. Such a trend is possible with group-based projects. However, it is unlikely that all groups in the class are rated the same. A separate grade quality assurance project is currently underway within the business department to identify instances of such grade consistency across courses. The results will be reported in due course.
- In addition, it is recommended that faculty members be trained to reflect individual differences in student performances on their grades. Further quality assurance could include an internal audit process to ascertain whether the students do deserve the high scores they earned. It is also recommended that the importance of these signature assignments be emphasized to students in every course, so that they present their best works. The table below presents the average grade distribution correlated with enrollment in each section of the course.

Term	Online		Weekend	
	No. of Students	Average Score (%)	No. of Students	Average Score (%)
Fall 2015	33	100%		
Spring 2016			47	92%
Summer 2016	30	95%	35	96%
Fall 2016	24	90%	28	90%
Spring 2017	41	91%	29	95%
Summer 2017	30	76%	25	88%

- The graphs below represent the above analysis.



10.0 Recommendations and Considerations

- Data quality**

In presenting this report, it has been noted that a students' score purely drove the data received. A need has been noted for qualitative data, which would help assess students

in the department more accurately. This would include assessments along metrics like communication skills and abilities as well as the nature of the assignment (e.g. case study, presentations, research papers, etc). Each signature assignment makes different demands of the student in terms of skills required and the introduction of qualitative scores will provide completeness to analyses presented in future.

Update: As a result of the above recommendation made in the previous release of this report, separate Signature Assignment Rubrics have been used in various courses. Since this is yet new, faculty is being systematically trained to use separate signature assignment rubrics to grade the signature assignments. Further, learning outcomes based assessments are also available as a separate report to ascertain student achievement of their course learning outcomes.

- **Data completeness and accuracy**

From the previous release of this report, we noted that, in performing checks of reasonableness and accuracy of the data concerned, that there are instances of data duplication in the source data. In an attempt to verify this, other sources of data were considered as avenues of cross checking. Further, in performing such checks, it was noted that data from an entire section of a weekday class, MGT 503 was missing for Summer 2016. This skews any analysis and data driven decision-making. The information was manually added from data received from the Registrar's Office.

Update: As a result of this recommendation, the EMS team, in conjunction with the Registrar's Office ensures that all grading elements, especially the Signature Assignments are complete before finalization. A separate Grade Verification report is the basis for flagging and missing or inaccurate data between systems. This report forms the basis for the department analysis of grade consistency by faculty.

- **Data consistency**

It has been noted that each member of faculty administers Signature Assignments differently. This includes assigning weights to the signature assignments. In some

instances, faculty assigns the EMS default value of 5 points for signature assignments and in others, faculty assigns 200 points for the same assignment in a different trimester. It is recommended to keep the scale consistent to avoid the need for standardizing the data manually.

- **Mapping to LOs**

Currently, the signature assignments are only mandatorily mapped to 2 or more CLOs. Each CLO is mapped to one or more ELOs. These ELOs, are in turn mapped to one or more PLOs. An exercise is currently underway to revise the current ELOs be undertaken as part of the Program Review process.

- **Grading Consistency and Quality Assurance**

The following issues have been noted in the report above:

- All students enrolled in the courses receiving the same score;
- Students enrolled in various sections of the same course earning grades that are either too high or too low;
- Students enrolled in various sections of the same course being graded differently;
- Students not submitting signature assignments and/or earning a very low score.

As a result, it is recommended that a centralized Quality Assurance process be instituted to identify the anomalies listed above. In addition, where students across a course or several sections of a course receive a perfect score or a very low score, it is recommended that an internal audit be conducted to ascertain whether the student actually deserves the score they received. Last, but not least, the importance of the signature assignments, must be stressed by faculty in each course, to incentivize the students to present their best possible work.

11.0 Conclusions

This report has been an analysis of student performance on Signature Assignments in the core courses for six (6) consecutive trimesters and selected elective courses of their MBA degree for three (3) consecutive trimesters. A core course is defined as a course which is mandatory for every student enrolled in a degree program with ITU's Business Department. There are four (4) such core courses in the Business Department. An elective course, by definition, is a course selected for further study by the student, based on their career and education aspirations.

Several levels of analysis and methodology behind the analyses have also been explained in detail in the preceding sections. At a high level, analyses and trends have been provided by trimester and by core courses.

Lastly, further considerations and recommendations have been provided to improve the efficacy of this report for departmental decision-making purposes.
