CS4050 – WEEK3: INFORMATION SYSTEMS AUDIT AND CONTROL

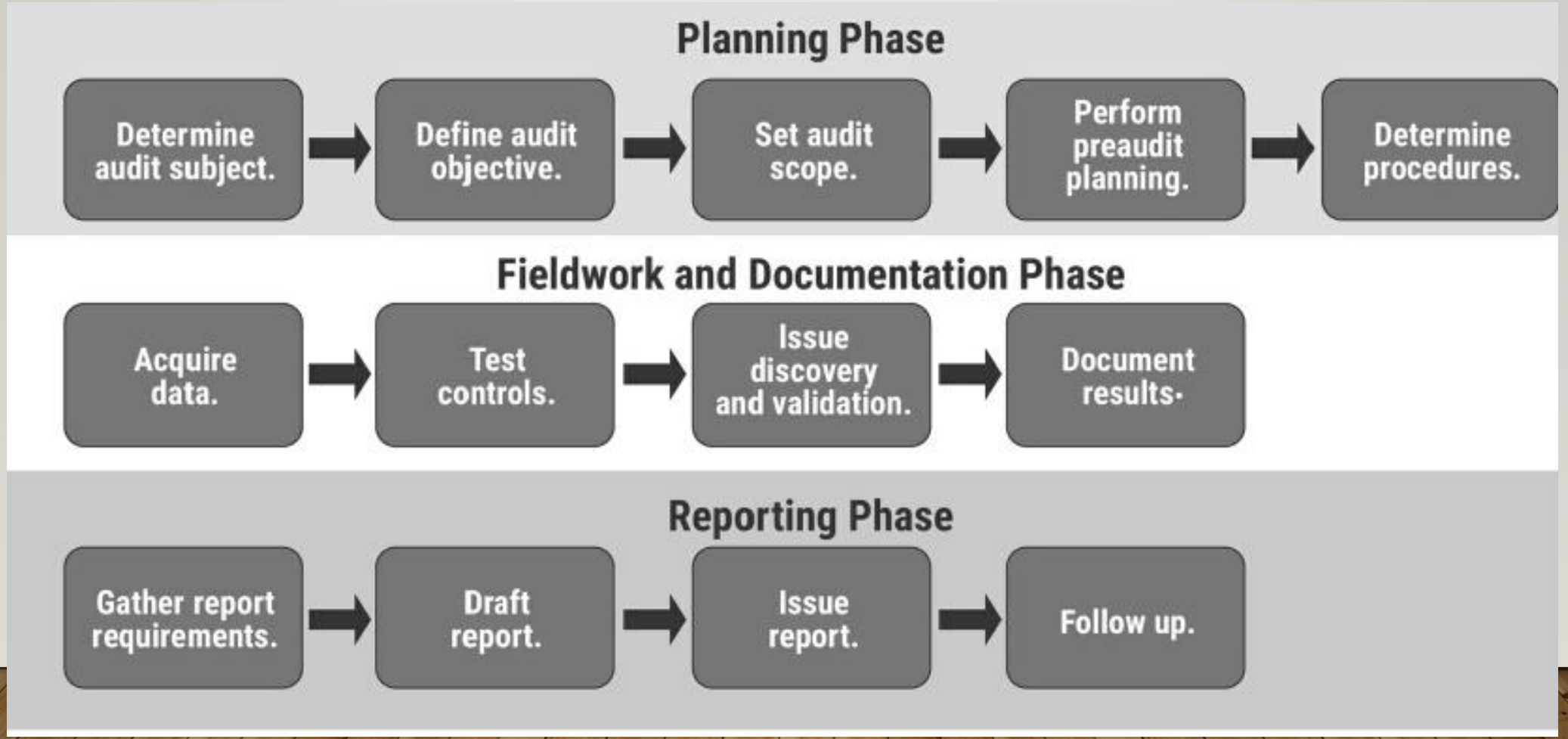
FAST NUCES – SPRING 2024

BS COMPUTER SCIENCE

DOMAIN 1 - PART B: EXECUTION

- 1.6 Audit Project Management
- 1.7 Sampling Methodology
- 1.8 Audit Evidence Collection Techniques
- 1.9 Data Analytics
- 1.10 Reporting and Communication Techniques
- 1.11 Quality Assurance and Improvement of the Audit Process

AUDIT PROJECT MANAGEMENT
TYPICAL AUDIT PROCESS STEPS BY PHASES



SKILLS TO DEVELOP BY AN IS AUDIT PROGRAM

- Good understanding of the nature of the enterprise and its industry to identify and categorize the types of risk and threat
- Good understanding of the IT space and its components and sufficient knowledge of the technologies that affect them
- Understanding of the relationship between business risk and IT risk
- A basic knowledge of risk assessment practices
- Understanding of the different testing procedures for evaluating IS controls and identifying the best method of evaluation, for example:
  - The use of generalized audit software to survey the contents of data files (e.g., system logs, user access list)
  - The use of specialized software to assess the contents of operating systems, databases and application parameter files
  - Flowcharting techniques for documenting business processes and automated controls
  - The use of audit logs and reports to evaluate parameters
  - Review of documentation
  - Inquiry, observations, walkthroughs and reperformance of controls

AUDIT WORKING PAPERS

Characteristics

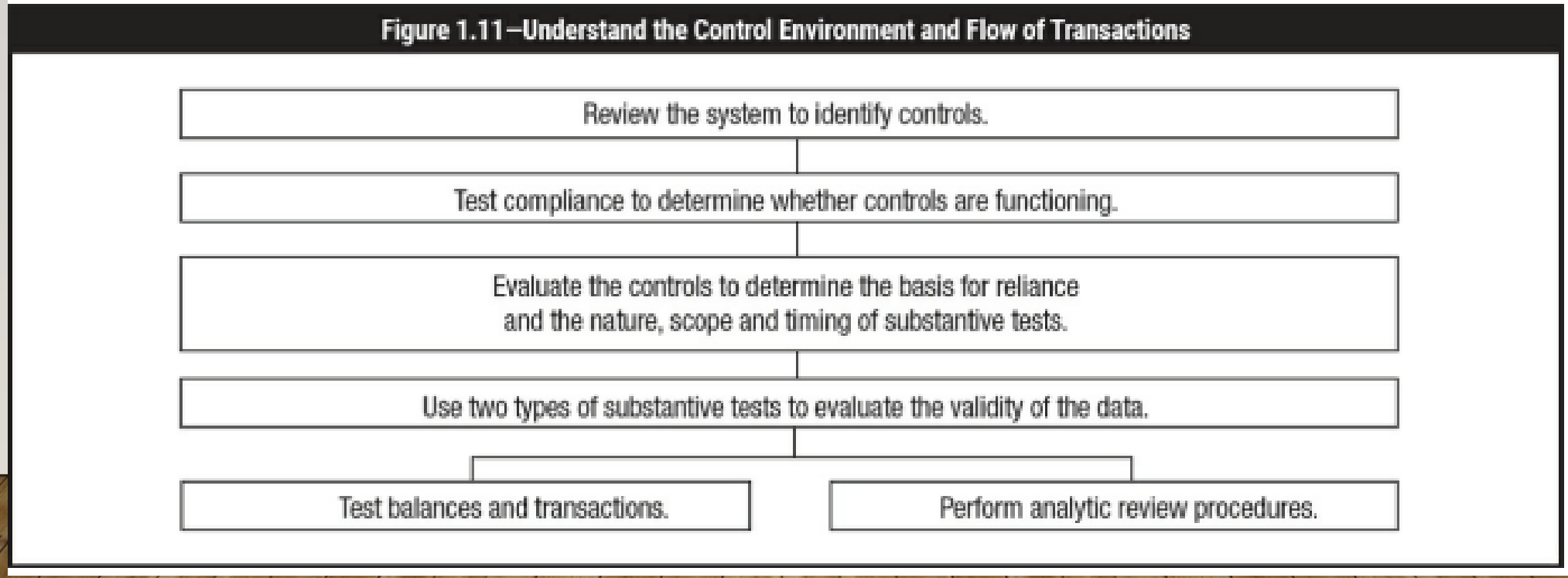
1. Control – means of control on current work
2. Planning – a basis on which current and future audits are planned
3. Evidence – evidence of work carried out
4. Support – schedule in support of accounts/results
5. Awareness – information about the business including the recent history

Importance

1. Check on audit team members
2. Assists in finalization
3. Reference for future
4. Evidence in court of law
5. Helpful for future planning
6. Content Management

SAMPLING METHODOLOGY – TYPES OF AUDIT TESTING

- **Compliance Testing / Test of Controls**: An audit procedure designed to evaluate the operating effectiveness of controls in preventing, or detecting and correcting, material weaknesses
- **Substantive Testing / Test of Details**: An audit procedure designed to detect material weaknesses at the assertion level



AUDIT SAMPLING

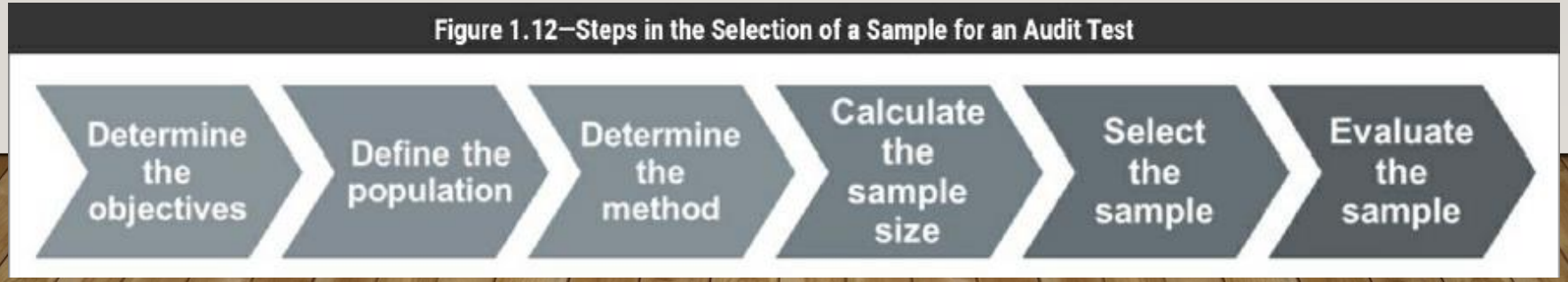
- Statistical Sampling (precision, expected error rate, mean, standard deviation, etc.)
- Non-Statistical Sampling – Judgmental Sampling
- Variable Sampling
- Attribute Sampling
  - Fixed Sample-Size / Frequency Estimation Sampling
  - Stop-or-Go Sampling
  - Discovery Sampling

- Variable Sampling (Stratified Mean Per Unit, Unstratified Mean Per Unit, Difference Estimation, etc.)
- Sampling Risk
  - **Incorrect Acceptance** - A material weakness is assessed as unlikely when, in fact, the population is materially misstated.
  - **Incorrect Rejection** - A material weakness is assessed as likely when, in fact, the population is not materially misstated.

AUDIT EVIDENCE

- An IS auditor's observations (presented to management)
- Notes taken from interviews
- Results of independent confirmations obtained by an IS auditor from different stakeholders
- Material extracted from correspondence and internal documentation or contracts with external partners
- The results of audit test procedures

Figure 1.12—Steps in the Selection of a Sample for an Audit Test



TECHNIQUES FOR GATHERING EVIDENCE

- **Reviewing IS organization structures**
- **Reviewing IS policies and procedures**
- **Reviewing IS standards**
- **Reviewing IS documentation -** SLAs with external IT providers, Functional requirements and design specifications, Tests plans and reports, Program and operations documents, Program change logs and histories, User manuals, Operations manuals, Security-related documents, BCPs, QA reports, Reports on security metrics
- **Interviewing appropriate personnel**
- **Observing processes and employee performance**
- **Reperformance**
- **Walk-throughs**

INTERVIEWING AND OBSERVING PERSONNEL IN PERFORMANCE OF THEIR DUTIES

- Actual functions
- Actual processes/procedures
- Security awareness
- Reporting relationships

Observation drawbacks

PURPOSES OF DATA ANALYTICS DURING AUDITING

- Determination of the operational effectiveness of the current control environment
- Determination of the effectiveness of antifraud procedures and controls
- Identification of business process errors
- Identification of business process improvements and inefficiencies in the control environment
- Identification of exceptions or unusual business rules
- Identification of fraud
- Identification of areas where poor data quality exists
- Performance of risk assessment at the planning phase of an audit

WHAT DATA ANALYTICS CAN ACCOMPLISH…

- Combining logical access files with human resources employee master files for authorized users
- Combining file library settings with data from the change management systems and dates of file changes that can be matched to dates of authorized events
- Reviewing table or system configuration settings
- Reviewing system logs for unauthorized access or unusual activities
- Testing system conversion
- Testing logical access SoD (e.g., analyzing Active Directory data combined with job descriptions)

REPORTING & COMMUNICATION TECHNIQUES

- Communicating Audit Results
- Audit Report Objectives:

1. Formally present the audit results to the auditee (and the audit client, if different from the auditee).
2. Serve as formal closure of the audit engagement.
3. Provide statements of assurance and, if needed, identification of areas requiring corrective action and related recommendations.
4. Serve as a valued reference for any party researching the auditee or audit topic.
5. Serve as the basis for a follow-up audit if audit findings were presented.
6. Promote audit credibility. This depends on the report being well developed and well written.

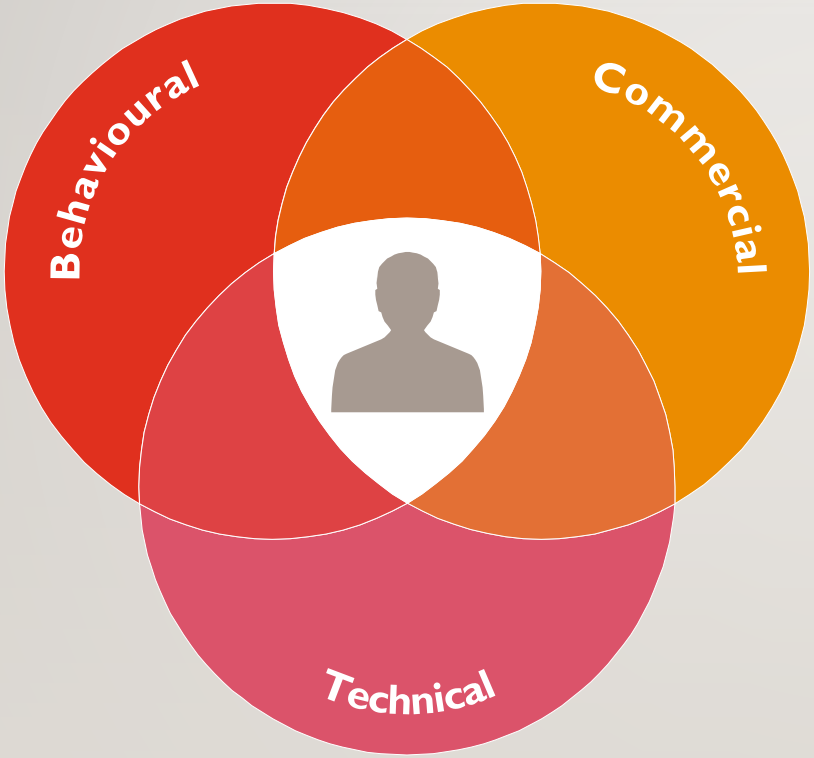
AUDIT DOCUMENTATION

- Planning and preparation of the audit scope and objectives
- Description and/or walk-throughs on the scoped audit area
- Audit program
- Audit steps performed and audit evidence gathered
- Use of services of other auditors and experts
- Audit findings, conclusions and recommendations
- Audit documentation relation with document identification and dates

QUALITY ASSURANCE AND IMPROVEMENT OF THE AUDIT PROCESS

- Elements of quality control:
  a. Leadership responsibilities for quality in audits
  b. Ethical requirements (including independence)
  c. Acceptance and continuance of client relationships and specific audit engagements
  d. Assignment of engagement teams
  e. Engagement performance (including consultation, resolution of differences of opinion and engagement quality control review)
  f. Monitoring

AUDIT AS PROFESSION – ESSENTIAL SKILLS



Demonstrating a business perspective, delivering value and insight and communicating with impact and empathy are important foundations for strong client relationships.