

**Supplementary Table 1. Parameters for benchmarking the models.**

| Model    | Epochs | LR   | HD   | Num.<br>layers | Batch<br>Size | Dropout | Pooling | Optimizer | Scheduler   | Seq.<br>Dim | Num.<br>Parameters |
|----------|--------|------|------|----------------|---------------|---------|---------|-----------|-------------|-------------|--------------------|
| GCN      | 50     | 1e-4 | 1024 | 2              | 1             | 0.2     | mean    | Adam      | MultiStepLR | 1024        | 2,361,857          |
| GAT      | 50     | 1e-4 | 128  | 2              | 1             | 0.2     | mean    | Adam      | MultiStepLR | 1024        | 296,193            |
| Baseline | 50     | 1e-4 | 1024 | 2              | 1             | 0.2     | mean    | Adam      | MultiStepLR | 1024        | 2,403,841          |
| Our      | 50     | 1e-4 | 1024 | 3              | 1             | 0.2     | mean    | Adam      | MultiStepLR | 1024        | 2,833,665          |